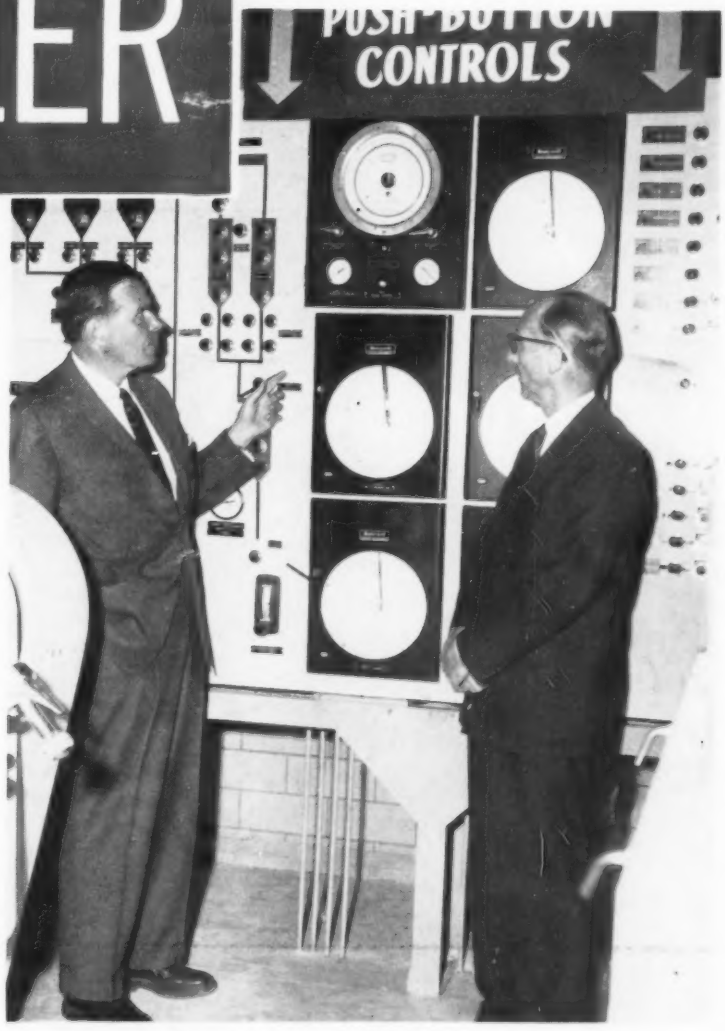
the NORTHWESTERN MILLER

THE INTERNATIONAL MAGAZINE
FOR THE GRAIN, MILLING
AND BAKING INDUSTRIES



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AACC Looks Ahead to Dallas

•

Feed Grain Legislation: Its Far-Reaching Effects

MILLING TECHNOLOGY FEATURES

New Techniques Using Impact Milling

•

Natural Sugar in the Endocarp Layer of Bread Wheat

•

Experiments with Use Of Radiant Energy

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Volume 265 APRIL 3, 1961 Number 7

Flaky Crust

Choice wheat . . . mild gluten . . .
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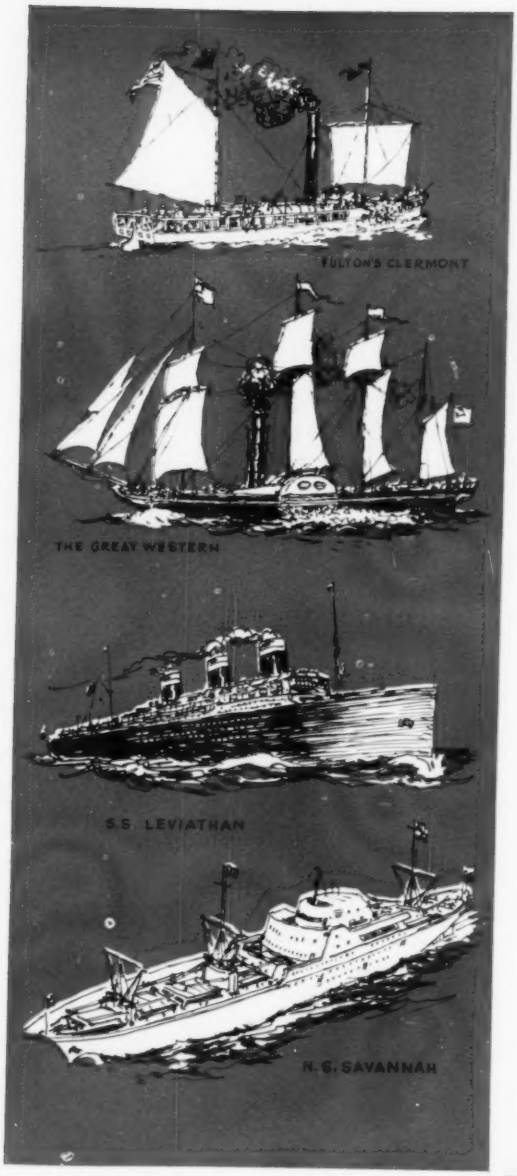

SHIPS THAT PASS IN THE NIGHT

Samuel Morey, Fitch and Oliver Evans all had propelled boats by steam engines before Robert Fulton sailed the Clermont up the Hudson River from New York to Albany, but the Clermont was the first steam-driven ship built for passenger service to be put into regular practical operation.

Soon, the Great Western was plying the Atlantic, to be followed by vast hordes of all sorts of steamships roaming the seven seas, but they now are beginning to give way to nuclear ships.

The Nuclear Ship Savannah, now undergoing sea trials, is blazing the trail of the Atomic Age on the shipping lanes of the world and who can foresee the changes that lie ahead?

Our industrial revolution has brought so many new procedures to so many fields, it is amazing to find a product in wide use a century or more ago still holding the high esteem today, it enjoyed then.

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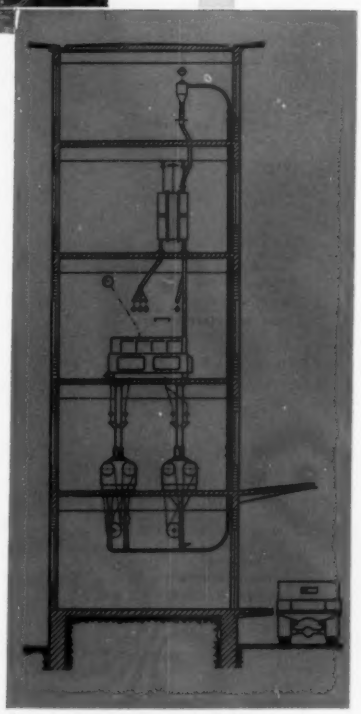

Cross section through typical 4-floor mill

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the NORTHWESTERN MILLER

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April 3, 1961

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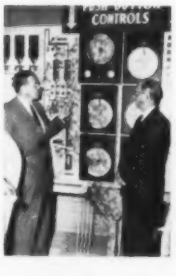

COVER PICTURE—

Charles H. Bell, president of General Mills, Inc., and Dr. Rene Buhler, co-owner of Buhler Bros., Uzwil, Switzerland, inspect the control panel of GMI's Bellera mill at Buffalo. An editorial, "Let's Face the Facts About Bellera," begins on page 7.

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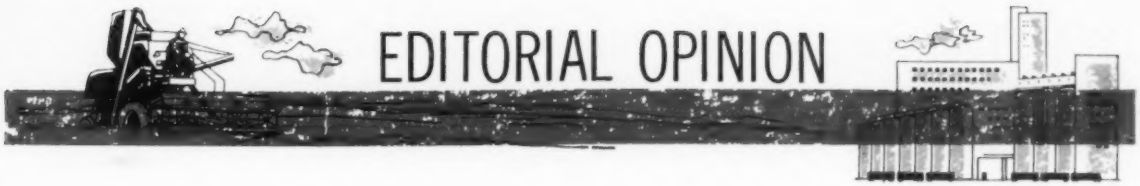

Remarkable Features of 65th AOM Technical Conference

BY MAIL AND WIRE reservations are pouring in for the 65th annual technical conference of the Association of Operative Millers at the Pick-Nicollet Hotel in Minneapolis May 22-25. A technical program as varied as any presented in the long string of 64 other conferences going back to 1896 is the touchstone. It is a remarkable program.

Remarkable, too, is the fact that chief executives of five, and probably six, of the world's largest milling machinery manufacturers will attend the conference. And some lucky miller and his wife will go home bearing a couple of tickets for a free trip by air to Switzerland.

The program itself is remarkable because of the range it covers. A perusal of the names of the people scheduled to appear before the operative millers, published on page 18 of this issue, is indicative of this. Long hours of hard work, painstaking deliberation and careful thought, often far into the night, are required to build a program of this caliber. Yet, remarkably, those charged with the task of providing knowledge for their fellow millers look upon it as an honor for themselves and for their firms. It is, indeed.

The task, avaricious eater of leisure hours, has been carried out by the program committee consisting of Robert Ellis, International Milling Co.; Paul McSpadden, Commander Larabee Milling Co.; Ken Nordstrom, General Mills, Inc., and Arlin Ward of the Pillsbury Co. And they have been ably assisted by International's Stanley Dybevick and Pillsbury's Tibor A. Rozsa, chairman and vice chairman respectively of the AOM's technical committee.

Those names alone are sufficient to guarantee that nothing but the best will be offered.

Representatives of the milling machinery firms are regular attenders at AOM annual conferences. But as far as our records show, never before have five top executives of five leading foreign firms shown up together. And there might even be a sixth.

From Uzwil, Switzerland, will come Dr. Rene' Buhler of Buhler Bros., parent of the U.S. Buhler Corp. Dr. Heinz Gehle of Germany's MIAG, parent of MIAG Northamerica, Inc., will be along and so will Highley Sugden of Henry Simon, Ltd., of England—affiliate of Simon-Carter Co. Also in attendance will be Denys W. Povey, recently-elected director of Thomas Robinson & Son, Ltd., of England. From Mexico will come Abel Morros of Mexico's Morros firm, an affiliate of the U.S. company Smico-Morros. The sixth topflight representative may be a director of Ocrim of Italy. To add to this galaxy of talent will be representatives of the many U.S. firms supplying the milling industry with its wants—a situation which epitomizes the importance of AOM in the eyes of mill builders everywhere.

Knowing all the top executives personally, we can safely say they will be willing and anxious to talk with any miller attending the sessions, whether he be young or old, starting or finishing his career, with a big firm or a small one.

Remarkable, too, will be the exhibits at the trade show held in conjunction with the conference. Already, 80 booths have been reserved. Nowhere in the world can millers see such a collection of equipment available to the milling industry.

Finally—but not by any means completing the account of what can be seen and heard and done in Minneapolis—is the trip to Switzerland. Buhler Bros. is celebrating this year its 100th anniversary and the Buhler Corp., proud of its parent, will award the trip to some active miller and his wife. Just what form the contest will take has not been revealed by the Buhler officials in Minneapolis but details will be announced shortly. But to qualify millers must attend the conference. The winner will be announced at the annual banquet on May 24.«

Let's Face the Facts About Bellera

THE BIGGEST TALKING POINT in the milling industry right now is the new Bellera installation of General Mills, Inc., at Buffalo, Minneapolis and Des Moines. Interest is high not only in the U.S. itself but in Canada, Mexico and in many countries overseas.

There is a tendency among some people, here and abroad, to "knock" Bellera. Competition is so tough these days that it is the inalienable right of other millers to discuss with their customers the effectiveness or ineffectiveness of any new system or method in the battle to pull business their way. Such tactics are permissible in today's free enterprise system and no one will have it otherwise. The competitor who is "knocked" will invariably fight back with equal strength.

But when the "knocking", no matter who does it, resorts to a denigration of the GMI effort, then it is a different story.

A European writer whose work appears in both British and German milling publications—many of his contributions have been noteworthy—and whose article on Bellera, published last winter, has been given a small private circulation in the U.S. and Canada, "knocked" the GMI process unfairly and even insulted the intelligence of the American operative miller.

The same kind of arguments he advances were advanced against most of the technical improvements wrought in this and other countries over the past 100 years—against steel roller mills, against the middlings purifier, the automobile, the airplane, against missiles and rockets. (And the Russians claim the credit for practically all of them, anyway.)

We do not question his right to comment because the patents, having been published, are public property. But it does appear that some of his statements are based on misconception, misunderstanding and misapprehension.

This particular reviewer indicated in his lengthy ex-

EDITORIAL OPINION

position, couched with peripheral politeness, that many of the things incorporated in Bellera have been tried or suggested many years past. Perhaps so. But surely he is aware of the fact that it still remained, despite all the trials and experiments spread over a period of a century as he relates, for somebody to take the initiative and put these ideas into concrete form.

GMI has done just that from the fruits of its own knowledge, research and experimentation over a long period of years to make Bellera a living, workable process. It succeeded where others failed. The airplane, as we know it today, is the product of several men's wits, not merely those of the Wright brothers.

More astonishing, perhaps, are some of the home-grown experts who have rushed to the rostrum and even into print with their own ideas of what Bellera is and does. While much of what has been said might have been correct, there was little conjectured that any normal, intelligent operative miller could not have guessed for himself. But some of the crystal gazing has been wide of the mark because it was based on faulty interpretations unsupported by complete information. As a result, errors were compounded by other errors as millers talked over Bellera among themselves.

Private discussions are a different matter. Talk among technologists is to be encouraged and no one wishes to deny them that privilege. In due course of time GMI will reveal some of the Bellera secrets. Till then, surely common courtesy demands that others, particularly millers employed by competing firms, remain off the platforms and out of the public prints with their own ideas of what Bellera is and does. The misconceptions, when circulated, could be harmful to GMI interests—and perhaps to the interests of the firms the orators and writers themselves serve.

Another "knock" concerns the wide publicity accorded Bellera. It has been said—and a few gentlemen at 9200 Wayzata Boulevard in Minneapolis might fall off their executive chairs in surprise at this—that Bellera is nothing more than a publicity stunt. At $15.5 million it is pretty expensive publicity.

It is true that GMI achieved wide national publicity—in the press, on radio and TV—in the past few weeks for Bellera. What happened was that the publicity boys at GMI took the chance offered by Bellera and played it to the hilt. And they are still doing it most effectively. They are paid to get the GMI corporate image and what the company does for the consumer into the news media and as trained newspapermen, with a highly developed sense of news values, they knew they had something worthwhile. That they were right is proved by the extensive press and air coverage devoted to Bellera. But the publicity angle was merely ancillary to the over-all operation. That the angle was handled skilfully was to be expected.

Let's face the Bellera facts honestly. A firm such as GMI would not spend millions of dollars and thousands of man hours on a system which had not been fully tested and appraised before being put into operation. That is the acid test of whether Bellera is a phantasy or a phenomenon. It is our guess it is neither. It is exactly what the GMI people say it is—a new approach to the milling process under which they aim to reduce handling and operational steps. It breaks down wheat into flour and unless the technologists working on its development could guarantee uniformity of product, it is doubtful whether we would have ever heard the word "Bellera." «

The story of the dedication of the new Bellera mill of General Mills, Inc., at Buffalo and an eyewitness account of a tour through the plant appeared on pages 10 and 11 of THE MILLER for March 20, 1961.

Profit, Depreciation and Modernization

WITH INCREASING MOMENTUM U.S. millers are moving into programs of modernization and rehabilitation of their plants. Many have already been reported—there is a story of a major one on page 14 of this issue—and we have information of more developments, details of which the firms concerned expect to release shortly.

But there are still many mills in sore need of refurbishing. It is entirely natural for technologists working in them to ask, despondently: "Why doesn't the boss do something about it?"

The boss will answer he cannot afford it. He will explain that the profit ratio in the flour business is too low to permit him to lay something aside out of earnings to replace worn out machinery and equipment.

In the opinion of one leading executive, the milling industry should make at least 4% on sales after taxes in order to do the kind of job the baker-customers expect and to take care of the people who provide the capital in the minimum way.

Of about one hundred representative commercial corporations canvassed by the New York Journal of Commerce some months ago, six out of 10 declared that the continued profit squeeze—the squeeze is not confined to milling—will force them to reduce their spending on plant improvement and other necessary growth activities. Roger Blough, chairman of the board of U.S. Steel, put it bluntly when he said recently: "No profits, no tools, no jobs."

Taxing policies and particularly depreciation allowances are matters which bug the boss and reduce his ability to modernize. Recently, the Treasury sent out a questionnaire in connection with depreciation. A preliminary report indicated that a clear majority of 3,000 companies reporting would increase their capital spending if Congress would liberalize the depreciation laws.

Unfortunately, a change in the depreciation laws might not help the boss very much. So many of the old plants today are largely written off and this is particularly true of the small or meduim-sized mill.

One miller puts it this way: "If the government would allow us to revalue our plants proportionately to current replacement values and re-depreciate from there, then we could think about modernization." But he adds quickly, "That's crying into the wind."

The answer for the milling business is a sensible price basis which, besides bringing in a reasonable profit, includes an amount sufficient to cover the cost of machinery that is wearing out with every hundredweight of product moving out of the mill. «

INDUSTRY RECORD . . .
An account of Trade Affairs and Events

United States:

Increases in net income and sales for 1960 compared with the previous year are reported for the George Urban Milling Co., Buffalo. Earnings for past year amounted to $170,670, equal to $1.89 a share against $123,929, or $1.37 a share for 1959, reports **George P. Urban, Jr.**, president. Sales for 1960 rose to $10,931,037, from $10,168,485 earlier year. "Flour milling operations are progressing satisfactorily, with a good start for 1961," says Mr. Urban.

●

New Loaf Scheduled For Food Shelves

A new loaf of bread, strengthened with imported hard wheats from the Great Plains region, is scheduled to appear soon on the food shelves in Belgium. The loaf is being formulated and introduced to Belgian consumers through promotional agreement between Great Plains Wheat, Inc., and National League of Belgian Bakers. Formula calls for flour containing 55% U.S. hard wheat. Trademark and wrapper design for the loaf, to identify wheat used in the flour, are part of the plan. Only bakeries agreeing to comply with formula for the loaf will be licensed to use trademark.

●

Ernst Auer Visiting Europe

Visiting Europe on a combined business and vacation trip is **Ernst Auer**, vice president of MIAG Northamerica, Inc. He will attend technical sessions at MIAG's headquarters in Brunswick, West Germany, studying the firm's latest developments in milling machinery. Accompanied by wife **Ingeborg** and children, **Christoph** and **Katharina**, he will then vacation in Austria and northern Italy. Mr. Auer expects to be back in Minneapolis about the middle of June.

SEC. FREEMAN PLANS ATTENDANCE AT K-STATE

Orville L. Freeman, secretary of agriculture, will appear at the dedication ceremonies for the new flour mill at Kansas State University and at the annual Kansas Festival of Wheat. Both affairs are to be held jointly at Manhattan, Kansas, on May 18. On hand will be millers, bakers and wheat growers.

●

Baking Industry Veteran Dies

Joseph P. Duchaine, owner-president of My Bread Baking Co., New Bedford, Mass., president of Quality Bakers of America Cooperative, Inc., and a baking industry leader, died in New Bedford March 23 of a heart attack. He was 58. A staunch believer in hard-hitting, consistent bread advertising and sales promotion techniques. As a baker, Mr. Duchaine also was highly interested in developments to advance his industry, and worked closely with production, engineering representatives of Wallace & Tiernan, Inc., to perfect W&T's Do-Maker process. He was a member of the American Bakers Assn., New England Bakers Assn. and a charter member of the American Society of Bakery Engineers.

●

GFDNA Reelects Its Officers

Reelection of officers of Grain & Feed Dealers National Assn., at 65th annual convention in Washington, brings **Charles Force,** partner in Little Bros. feed firm, Kalamazoo, Mich., to helm for another term as president. **H. V. Nootbaar,** Nootbaar & Co., Pasadena, Cal., will serve again as first vice president; **S. Dean Evans, Sr.,** Evans Grain Co., Salina, Kansas, as second vice president, and **Sam Rice, Jr.,** Rice Grain Co., Toledo, third vice president.

●

Food Congress Names Program Chairman

Lee S. Bickmore, president of National Biscuit Co., has been appointed chairman of the program committee for the Fifth International Food Congress to be held in the New York Coliseum Sept. 8-16, 1962. The food congress is expected to draw active participation from all segments of the U.S. food industry. More than 50,000 food industry members from 30 countries are expected to attend.

●

GMI Declares Quarterly Dividend

Board of directors, General Mills, Inc., has declared dividend of 30¢ a share on company common stock, payable May 1 to stockholders of record April 10. This is 131st consecutive quarterly dividend on GMI's common stock.

●

Railroads Grant Rate Reductions

Freight rate reductions on wheat for export between Great Plains states and Gulf Coast ports granted by Santa Fe, Rock Island and Union Pacific railroads. Reduction in costs of shipping from a wide area of Kansas and Colorado expected to result, helping to level peaks and valleys in rate structures which have accrued from spot reductions in recent years. Reduced rates to become effective May 10, reports **Arthur Wilks** of Burlington, Colo., chairman of Wheat Producers Transportation Committee, an organization supported by Great Plains Wheat, Inc. Lower rates will make wheat grown in Great Plains states more competitive in world market, predicted Mr. Wilks, at the same time complimenting railroads for their cooperation.

●

Seaboard Announces Dividend Payment

Regular quarterly dividend of 7½¢ on common stock of Seaboard Allied Milling Corp. was paid March 25 to stockholders of record on March 15, according to announcement by **Otto Bresky**, president. Dividend was paid on 932,667 common shares.

●

Durum Committee Reviews Program

Durum Wheat Institute Committee, meeting in Minneapolis, has reviewed

past year's program and approved new budget providing for production, printing of a school room wall chart, "Durum Macaroni Foods . . . from Farm to Table." Approval also given to continuation of institute's home economics work. Committee has transferred title to 1,700 copies of film strip, "Tricks and Treats with Macaroni Foods" along with narration guides and recipe leaflets from durum institute to National Macaroni Institute for distribution under permanent loan policy to audio visual libraries in 70 key U.S. cities. Meeting was attended by **A. L. DePasquale**, International Milling Co.; **E. W. Kuhn**, Amber Milling Division, Farmers Union Grain Terminal Assn.; **C. W. Kutz**, Commander Larabee Milling Co., division of Archer-Daniels-Midland Co.; **E. L. Merry**, General Mills, Inc.; **L. W. Swanson**, Russell Miller-King Midas Mills, division of F. H. Peavey & Co.; **R. R. Wentzel**, Doughboy Industries, Inc.; **William Brezden**, North Dakota Mill & Elevator, and **William A. Lohman, Jr.**, General Mills, Inc.

●

Daffin Proposes Sale of Stock

Daffin Corp., of Lancaster, Pa., and Hopkins, Minn., has filed registration statement with securities and exchange commission for proposed offering of 150,000 shares of common stock. Shares would be sold from holdings of current stockholders, who will continue to own about 75% of outstanding common shares of the company.

●

E. A. Larson, Veteran Of Pillsbury, Retires

E. A. Larson, product manager of soft wheat flour in the bakery products division of the Pillsbury Co., retired April 1 with 43 years of company service. Mr. Larson joined Pillsbury in 1918 as clerk in the traffic department, was transferred to Pillsbury's export department in June of 1921 to route shipments of flour overseas. During this period he attended night classes at Minnesota College of Law and was admitted to the bar in 1923. He became head of bakery cake flour department in 1933, and during following years held various product management positions in firm's bakery products division until appointed product manager for soft wheat flours in 1958.

E. A. Larson

●

Buhler Mills Plans New Office Building

Buhler Mills, Inc., Hutchinson, Kansas, has let contract for new office building, to be constructed across the street from its present facilities. Improvements will include a 50-ton scale adjacent to the new quarters.

●

Operating Profit Up for Southern

Southern Bakeries Co. reports operating profit for period of Jan. 1-March 11 up 40.4% from same period of last year. **Ogden A. Geilfuss**, president, in annual report to stockholders, cited net sales of $29,542,711 for 1960, gain of nearly $850,000 over comparable figure for 1959. Net income, after taxes of $705,000, was $636,338 for 52 weeks of 1960 compared with $720,259 for 53 weeks of 1959. After allowance for 24,196 common shares paid as extra 5% stock dividend in January to both common and preferred share holders, earnings for 1960 were equivalent to $1.24 a share of common stock, compared with $1.40 a share in 1959. In 1960, preferred stockholders were paid cash dividends of $1 a share and common stockholders 50¢. Holders of $10 debentures received 75¢ in interest. Company also made payable on April 1 to stockholders of record on March 24 quarterly dividend of 12½¢ on both preferred and common shares; an additional preference dividend of 12½¢ on preferred, and 18¾¢ interest on $10 debentures.

●

Export Movements Of Wheat Flour

Regular U.S. commercial exports of wheat flour for January amounted to 2,115,521 cwt., cumulative since July 17,063,136, according to export department of Millers National Federation. Exports of wheat flour for foreign relief totaled 767,697 for January, 6,843,564 for cumulative period.

"Well, sir," said Old Dad Fetchit of the Fish River Roller Mills, "it's kind of funny and puzzlin' the way folks sometimes buys flour an' sometimes don't. It's like times I've been out tryin' to hook a mess of bass when the wind would be in the east, the crick all riled up an' only some ailin' minners for bait, an' I've been busier than anybody from Cape Cod to hell jes' haulin' 'em in. Then other days, with everthin' jes' right, I wouldn't hardly get my bait back. Seems as if flour buyers ain't much different from fish, speakin', of course, kind and friendly, the way a miller naturally does about a customer."

Philippines:

A contract valued at almost $1,250,000 for a new flour mill in the Philippines has been placed with Thomas Robinson & Son, Ltd., the mill engineering firm in Rochdale, England. To be for the Central Philippine Milling Corp., the facility will be situated at Iligan near Cebu City, and will have a capacity of 4,000 cwt. for 24 hours of operation, with pneumatic conveying throughout. This is the fourth large contract of this type which the Robinson firm has received from the Philippines since 1958. Wheat will be delivered to the mill in barges which will be unloaded by a suction intake plant into any of eight concrete elevators. A large degree of pushbutton control will be incorporated into the installation. «

AACC Looks Ahead to Annual Meeting

Full Program of Technical Papers, Exhibits, Inspirational Speaker, Honorary Awards Planned for April 9-13 Sessions

THE American Association of Cereal Chemists, primed and ready to present its members an outstanding program of technical papers, an inspirational speaker and entertainment, will convene its 46th annual meeting at the Baker Hotel in Dallas, Texas, April 9-13.

Reserving April 9 for registration, meetings of committees and the president's reception, AACC will move into its technical sessions bright and early April 10, with 73 papers on the program.

Dr. Byron S. Miller, program chairman, has arranged for sessions which give heavy emphasis to research, along with a sufficient number of papers on applied aspects on cereal chemistry to make a broad agenda of interest to all who attend.

Inspirational Speaker

Science and religion will be merged by AACC's keynote speaker, Dr. James H. Jauncey, pastor of the First Christian Church, El Paso, Texas. His subject is titled, "The Scientific Revolution," to be presented with the background attained by Dr. Jauncey as both a scientist and minister.

Originally from Australia's bush country, Dr. Jauncey achieved his education by means of competitive scholarships and is the holder of 10 academic degrees. He is a chemist, mathematician, philosopher, engineer and theologian.

Also on April 10, AACC will confer honorary membership on six men elected through a special mail ballot of its members.

In addition to its schedule of technical papers during the annual meeting, AACC will confer the Thomas Burr Osborne Medal on its new president-elect, Dr. Majel MacMasters for her outstanding contributions to the field of cereal science.

Thomas J. Schoch, Corn Products Co., in conjunction with presentation of the award, will speak on the accomplishments of Dr. MacMasters. Following this the medal winner will address AACC's membership on her subject, "Implications of Kernel Structure."

Host for the convention will be AACC's Lone Star Section.

Annual Meeting Exhibits

Another highlight of the annual meeting will be the display of new products, services and equipment by allied firms. The accompanying floor plan (page 13) is provided to give those who attend a guide to visiting these exhibits, of which a brief resume follows:

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NO. 1—Encyclopedia Britannica.

•

NO. 2—C. W. Brabender Instruments, Inc. — The firm will exhibit all of its physical testing equipment. Special attention will be given to the Quadruplex pilot mill and the firm's super high-speed "Do-Corder" for testing flour, as in such usage as the continuous bread process. In attendance will be C. W. Brabender, president, and A. O. Schmitz, vice president.

•

NO. 4—United Salt Corp.—The product Admiral Sea Salt will be on display, a natural product that is nonhygroscopic, free flowing and bacteria free, the company states. On hand to exhibit the product and to explain its composition, processing and uses will be Joseph B. Cook and J. W. Willis.

•

NO. 5—Food Industries Co.—Featured will be IDX dough conditioner tablets, and the Sporban line of rope and mold inhibitors used by cake and pie bakeries throughout the country. Manning the booth will be Leon Seldon, vice president; Lewis P. MacAdams, E. A. Vaupel, Pete Metcalf and A. S. Rosenberg.

•

NO. 6—Chas. Pfizer & Co., Inc.—AACC members and visitors will be able to see several products. These will include the essential amino acid L-Lysine; the chemical leavening agent Glucono-Delta-Lactone; the specialty vitamin mixtures for the milling industry which go under the name Bi-Cap; also Sol-U-Pak, the specialty vitamin blend for bakers; Sorbistat, the registered anti-mycotic for chemically leavened baked foods, and the non-caloric sweetener, Cyclamates. In attendance will be J. E. McVeigh, J. D. Langlois, R. D. Knoebel and C. Feldberg.

•

NO's. 7-8—Fries & Fries, Inc.—Several newly developed imitation flavors will be introduced at Dallas: Orange juice, lemon juice, vanilla bean, cooked butter and cheese. Beverages made from the new orange and lemon juice flavors will be dispensed. Complete information will be available on the firm's special flavor development service. On hand will be Robert G. Fries, Jr., Merrill J. Gross, Roderick J. West and Robert F. Murphy.

•

NO. 9—Sterwin Chemicals, Inc.—Emphasis will be on products for the enrichment of flour and bread, and for the bleaching and maturing of flour. Samples and informational literature will be available. Representatives will be R. S. Whiteside, president; Dr. R. C. Sherwood, vice president; W. F. Keller, manager, flour service division; L. R. Patton, manager, milling and bakery products division; Lyle P. Carmony, sales manager, milling products division; W. O. Edmonds, R. C. Washington, Vern Behan and W. J. Davis.

•

NO. 10 — Coleman Instruments, Inc.—The firm's new Model 29 nitrogen analyzer which automates the micro Dumas combustion method for nitrogens will be exhibited, plus a new line of pH meters, featuring both the Model 28 Metrion and Model 31 Companion, Model 21 flame photometer and a line of spectrophotometers. J. C. Elkins, southwestern regional manager, will be present.

•

NO. 11—American Association of Cereal Chemists. This will be the membership booth.

•

NO. 14—Eastman Chemical Products, Inc.—The booth will display various Tenox food-grade antioxidants used to increase shelf life of cereal products. Particular emphasis will be given to the work which has been carried out in the company's laboratories during the past two years in connection with development and evaluation of various methods of quantitative analysis for phenolic antioxidants in food products.

•

NO. 15—Coulter Industrial Sales Co., division of Coulter Electronics, Inc.—Cereal chemists will be able to view particle size distribution analysis equipment which electronically counts and measures fine particle material from one-half micron to over 200

microns with a minimum involvement of human error and time. Information will be given on the new Model "C" Coulter counter which simultaneously records up to 12 size levels of sample material, supplying complete data in less than one minute. Vernon L. Bergman, Gene Worley and Shepard Kinsman will handle the exhibit booth.

•

NO. 16—Hegman, Inc.—The Udy Protein Analyzer will be highlighted, with three representatives on hand to explain and point out its features for protein testing by chemists, laboratory personnel or others assigned to use it. Present will be Dr. Doyle Udy, Ralph Hegman, Jr., and Marshall Carpenter.

•

NO. 17—Merck & Co., Inc.

•

The Union Machinery Division of American Machine & Foundry Co. plans to have its mobile laboratory on exhibit in front of the Baker Hotel in Dallas throughout the convention. The mobile unit will be equipped to carry on the usual analytical and physical determinations made on raw bakery materials and to control liquid sponge fermentations of the AMFlow process along with checking the end bread product. The laboratory also is equipped to study enzymatic activity of the brew system as well as that within the dough structure. Staff members who will be attending are Joseph Daily, Lucien Rose and Edward Hayes. «

EDITOR'S NOTE: Requests for details of exhibits and personnel were made of all exhibitors. Where no details are reported reply was not received.

AACC to Honor Six Outstanding Members

Dr. M. J. Blish • Dr. C. N. Frey • Dr. D. W. Kent-Jones • Dr. Ralph K. Larmour
Ralph W. Mitchell • Dr. R. C. Sherwood

Six of AACC's distinguished members will be honored during the annual meeting in Dallas, a distinction restricted to those individuals who have made significant contributions to the field of cereal chemistry. Names of the new honorary members follow, with brief biographies of each.

Dr. M. J. Blish

Dr. Blish, Phoenix, Ariz., received his B.S. in 1912 and his M.A. degree in 1913 from the University of Nebraska, his Ph.D. from the University of Minnesota in 1915. He has been an AACC member since 1922 and served as president in 1923-25. He was editor-in-chief of Cereal Chemistry, 1938-43, was awarded the Osborne Medal in 1936 and contributed much to the understanding of the chemistry of cereals through extensive research and publishing.

Dr. C. N. Frey

A resident of Scarsdale, N.Y., Dr. Frey was awarded his B.S. in 1911 from Michigan State University, his M.S. and Ph.D. from the University of Wisconsin in 1915 and 1919, respectively. He received an honorary doctor of science degree from Michigan State in 1946, and has been a member of AACC since 1927, serving on numerous committees and as president in 1941-42. He was president of the Institute of Food Technologists in 1951-52 and is a holder of the Babcock and Appert food technology awards. At present Dr. Frey is a lecturer in food technology at Massachusetts Institute of Technology. He has contributed greatly to cereal chemistry through extensive research.

Dr. D. W. Kent-Jones

Director of the Kent-Jones & Amos Laboratories, London, England, he is known widely for his contributions to the science of cereals. Dr. Kent-Jones holds B.S. and Ph.D. degrees obtained at London University in 1926. He is a fellow of the Royal Institute of Chemistry, and is the author of a considerable amount of published material, being best known for two books, Modern Cereal Chemistry and The Practice and Science of Breadmaking. He designed the Kent-Jones and Martin color grader which is used extensively to measure flour color. Dr. Kent-Jones also is a past president of the British Society of Public Analysts.

Dr. Ralph K. Larmour

From Toronto, Ont., Dr. Larmour holds a B.S. degree earned at the University of Saskatchewan in 1923 and an M.S. degree which he received from that university in 1925. His Ph.D. was obtained at the University of Minnesota in 1927. He was a professor of chemistry at the University of Saskatchewan during the period 1927-38, following which he accepted a professorship at Kansas State University. He became director of research for Maple Leaf Milling Co., Ltd. (now Maple Leaf Mills, Ltd.) in 1944, a position he still holds. A member of AACC since 1928, he has served on a number of committees, and has authored a number of research papers which have been published in AACC journals as well as in the Canadian Journal of Research.

Ralph W. Mitchell

A charter member of AACC, Mr. Mitchell served as the association's president during 1919-21. He compiled its first history and served on key committees, including the Osborne Medal Award Committee. Mr. Mitchell was with Purity Baking Co., Chicago, but is now retired from that position. At present he is a lecturer on cereal chemistry at the American Institute of Baking in Chicago.

Dr. R. C. Sherwood

Originally from South Dakota, Dr. Sherwood now lives in Jackson Heights, N.Y. He obtained B.S. and M.S. degrees from South Dakota State College, in addition to doctorates from South Dakota State and the University of Minnesota. Dr. Sherwood served as AACC president in 1933-34, was managing editor of Cereal Chemistry from 1927-31, and has written extensively for that publication. A member of AACC since 1923, he has promoted development of the profession of cereal chemistry and continues to lend support and invaluable advice to it. Dr. Sherwood is vice president and technical director of Sterwin Chemicals, Inc. «

New AACC Officers To Be Installed

For the first time since 1943-44—and only the third time in its 46-year history—the American Association of Cereal Chemists will have a woman president - elect when it concludes its annual meeting in Dallas. She is Dr. Majel MacMasters, professor at Kansas State University, Manhattan. Mary Brooke Mahan, with Doty Laboratories, Inc., until the time of her death, was president in 1934-35. Dr. Betty Sullivan, Russell Miller-King Midas Mills, was president in 1943-44.

Dr. M. MacMasters

Dr. James W. Evans, American Maize Products Co., current president-elect, will move up to AACC's presidency, replacing Dr. John Johnson, another member from K-State.

Dr. MacMasters joined the staff of K-State in the summer of 1960 following a long period of association with the Northern Regional Research Laboratory, Peoria, Ill.

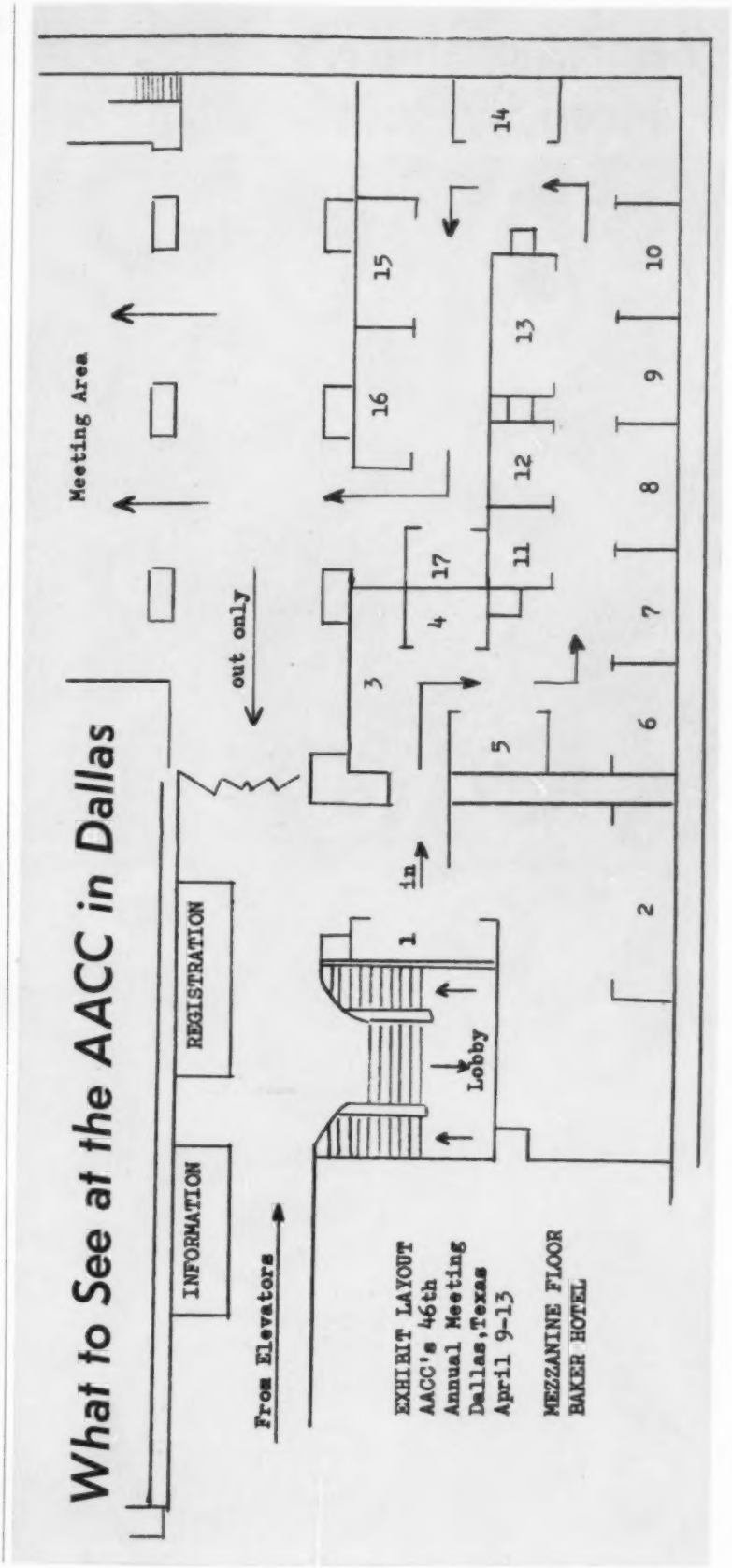
Dr. Byron S. Miller

Dr. James W. Evans

Her present position involves both teaching and research, and earlier this year she was named recipient of AACC's Osborne Medal.

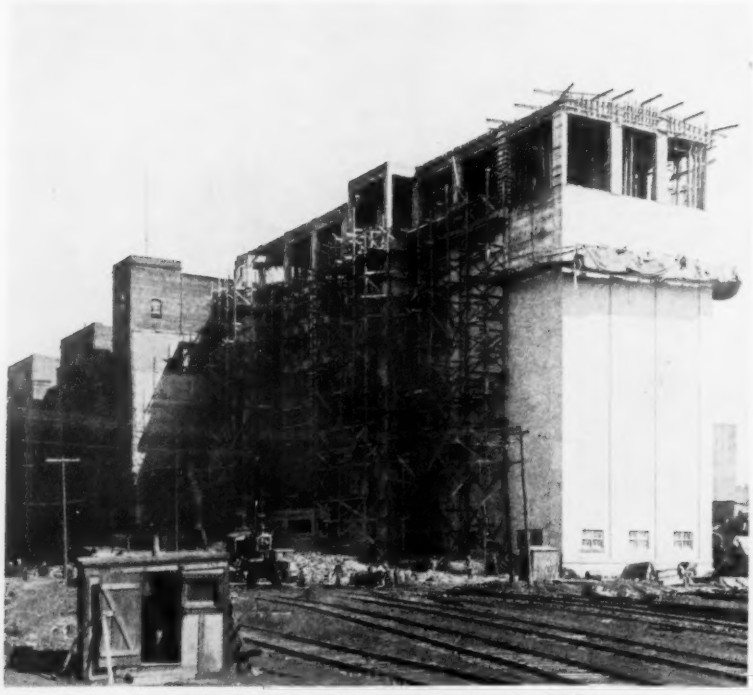
As a member of AACC since 1941, Dr. MacMasters has been active on numerous technical and association committees. She was program chairman of the 1955 annual meeting and is at present chairman of the revisions committee for the seventh edition of Cereal Laboratory Methods.

Newly elected to the office of secretary, Dr. Byron S. Miller, also of K-State, will replace Dr. James W. Pence, who has held that post since 1956. Dr. Miller has been a member of AACC since 1947 and currently is program chairman of the 1961 annual meeting. A two-year term on the board of directors has been designated for S. F. Brockington, Quaker Oats Co., Barrington, Ill. «



Major Modernization Program at Buffalo Plant Planned by Russell Miller-King Midas Mills

Aerial view of the Buffalo plant of Russell Miller-King Midas Mills



Buffalo plant under construction in 1924

In line with the policy of keeping its mills "fully abreast of latest technological advances and developments," Russell Miller-King Midas Mills, with headquarters in Minneapolis, has announced plans for a major modernization of its Buffalo plant.

Besides taking advantage of all modern milling techniques aimed at increasing efficiency and quality, company officers expect the capacity to show a small increase over the currently rated 10,000 sacks, basis 24 hours of operation.

Contract for the engineering work involved and for most of the equipment required has been awarded to the Simon-Carter Co. of Minneapolis. Included will be Simon roller-mills and purifiers. Plans also call for mill stocks and products to be pneumatically conveyed. In addition, the existing bulk storage facilities at Buffalo will be enlarged and converted to pneumatic handling by the Simon-Carter firm.

E. J. Glattly
Plant Manager . . .

A spokesman for the milling firm said that features developed from the years of extensive research undertaken by Russell Miller-King Midas will be incorporated in the modernization program.

Dr. Betty Sullivan, well known in cereal chemist and operative miller circles, is director of research and vice president of the company. Also a vice president is Otto F. Wilke, general milling superintendent. Both are headquartered in Minneapolis and both have traveled abroad inspecting foreign mills and examining the techniques of overseas millers. Vice president E. J. Glattly is manager of the firm's Buffalo operations.

Built in 1924

The Buffalo mill was built in 1924. The contractor, J. E. Cowper Co. of Boston, was called upon to erect an eight story, 50 x 184 ft. mill building constructed of reinforced concrete. In 1923, the company purchased the property of the American Malting Co. and built an elevator on the site. The rear portion of the malting plant was demolished to make room for the new mill.

The contract for the supply of ma-

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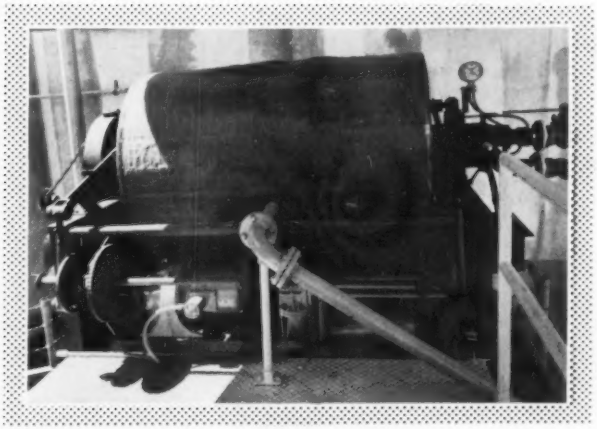

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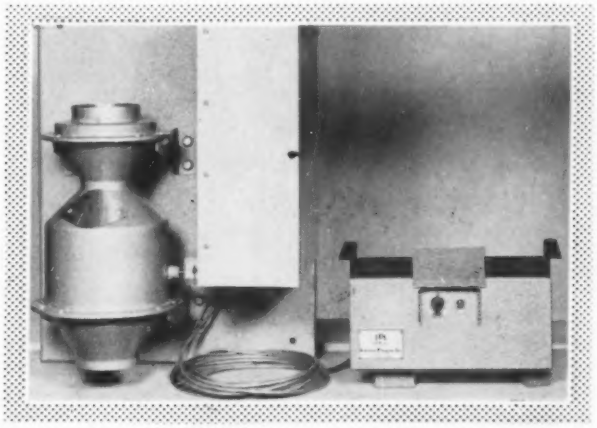

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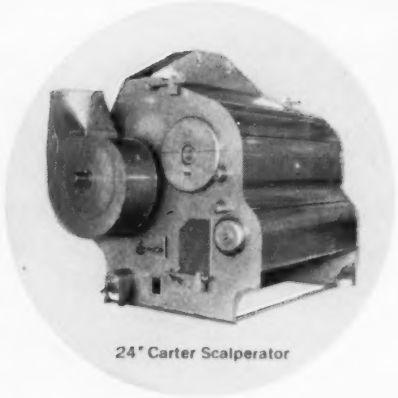

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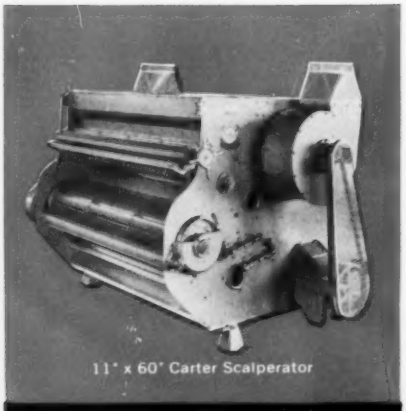

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Designed to handle all types of grain, Carter Scalperators range in capacities from 1,000 to 6,000 bushels an hour. In addition to being used for high-capacity receiving operations, Scalperators provide on-stream protective scalping and aspirating.

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chinery was awarded to the Nordyke & Marmon Co. The mill, a near duplicate of the firm's B mill in Minneapolis, was equipped with 67 roll stands of "special construction and finish."

In 1934, extensive improvements were made in the wheat cleaning system under the supervision of O. J. Manderud, general superintendent in Minneapolis, and H. H. Trapp, then superintendent in Buffalo. At that time, these improvements were described as among the most far reaching in wheat cleaning ever introduced by a milling firm. The plan called for the installation of a large number of Carter grain cleaning units.

Over the years, improvements in the mill itself continued to be made and the capacity was increased in the late 1940's.

Truman Colburn is currently milling superintendent at Buffalo with Clifford Batten as assistant superintendent.

Fourth Largest Milling Firm

In addition to the Buffalo plant, Russell Miller-King Midas has mills at Alton, Ill.—the largest with a capacity of around 12,900 cwt.—Dallas, Texas; Hastings, Minn.; Superior, Wis.; Grand Forks, Valley City and Minot, N.D., and Billings, Mont.

Total capacity of all the plants at the present time, including durum, is in the region of 64,900 cwt., basis 24 hours of operation, rating Russell Miller-King Midas as the fourth largest milling firm in the nation. Only General Mills, Inc., International Milling Co., and the Pillsbury Co. top it. «

Sterling Drug Reports Record Sales, Earnings

Sales and earnings of Sterling Drug Co., Inc., parent company of Sterwin Chemicals, Inc., attained record levels in 1960, it has been reported to stockholders.

Net sales of Sterling and consolidated subsidiaries for the year ended Dec. 31 amounted to $218,526,000, a rise of 4.4% over sales of $209,248,000 in 1959. Net earnings were equivalent to $2.80 a share compared with $2.65 a share in 1959. Earnings before taxes were $45,214,000 compared with $42,890,000 in the previous year.

Net profit for the period reached $22,214,000, a gain of 5.8% over the figure of $20,990,000 the previous year. «

District 4, AOM, Planning to Meet On April 14-15

District 4, Association of Operative Millers, host group for the 65th annual technical conference of AOM to be held in May, will hold its "conference booster session" in Minneapolis April 14-15.

Members of the district and their wives will open the two-day meeting at the Dyckman Hotel the evening of April 14 with a reception, courtesy of the Allied Trades Committee of District 4, followed by a "Dutch Treat" smorgasbord.

Donald S. Eber, executive vice president of AOM, will be present to go over final technical conference plans with district members and to background them on the over-all progress.

Two speakers and a film are on the program for April 15. M. C. Cecka, Simon-Carter Co., Minneapolis, will speak on the firm's precision grader used for sizing or separating various grains and other granular materials by means of thickness and width. He will explain the two types of perforations used in the cylindrical precision grader shells, the slots which perform separations or sizing by thickness and round perforations which separate or size on the basis of width, and the various sizes of machines for meeting different capacity requirements.

A. E. Swanson, the Day Co., Minneapolis, will speak on "Dust Collecting Systems for Mills and Elevators."

Jack Houston, Wallace & Tiernan, Inc., Minneapolis, will show a film on the Do-Maker process. «

Servicing Firm Named For Dockage Testers

Simon - Carter Co., Minneapolis, has appointed a Houston, Texas, manufacturer of rice inspection equipment, H. T. McGill, as the official repair station for its Carter dockage testers.

The dockage testers are used throughout the country by the grain and rice industries and by federal and state inspection services.

McGill, in addition to stocking a complete line of repair parts for the Carter dockage tester and all McGill equipment, supplies grain fumigants, provides fumigation servicing and counsel, and furnishes plastic films for covering stored grain and feed. «

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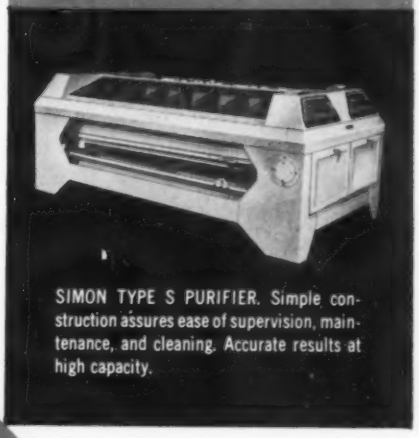
CARTER MILLERATOR. The clean, smooth-running machine for screening and aspirating grains. The screens stay clean.



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Program for the 65th Annual Technical Conference
Association of Operative Millers

Pick-Nicollet Hotel, Minneapolis
May 22-25, 1961

Sunday, May 21

Committee Meetings:
Technical—9 a.m.-12 noon — 1 p.m.-5 p.m.—Colonial Room
Sanitation—1 p.m.-5 p.m.—Oak Room
Education—1 p.m.-5 p.m.—Aquatennial Room

Monday, May 22

9:00 a.m.—Executive Committee—Rod and Reel Room.

9:00 a.m.—Sanitation Committee Meeting—Oak Room.

9:30 a.m.—Maintenance Panel Members Briefing — Aquatennial Room.

10:30 a.m.—What's New Speakers Briefing—Aquatennial Room.

12:00 Noon—Invocation—Dr. Arnold H. Lowe, pastor, Westminster Presbyterian Church, Minneapolis, Minn.
Lunch—Courtesy Swiss Silk-Kressilk Products, Inc.

1:00 p.m.—Foreign Millers Introduced:
"Service and Sanitation Costs," Marcus Heffelfinger, Russell Miller-King Midas Mills, division of F. H. Peavey & Co., Minneapolis, Minn.
"Mill Goals for the Next Ten Years," C. L. Mast, Jr., Millers National Federation, Chicago.
"Barriers to Communications," Dr. Ralph G. Nichols, Head of Communications Program, University of Minnesota, Minneapolis.
Committee Reports—Technical Committee, E. S. Dybevick, International Milling Co., Minneapolis; Sanitation Committee, George Wagner, The Pillsbury Co., Minneapolis; Education Committee, Prof. Eugene P. Farrell, Kansas State University, Manhattan, Kansas.
Officers' Reports—President, Treasurer, Secretary.
Visit Exhibits.

8:30 p.m.—Allied Trades Party.

Tuesday, May 23

9:00 a.m.—What's New Speakers:
Moderator—E. S. Dybevick, International Milling Co., Minneapolis.
Subjects and Representatives:
Smico-Morros Mills and Equipment for American Markets—O. J. Zimmerman, Smico, Inc., Minneapolis.
Forced Flow Packer—H. J. French, St. Regis Paper Co., New York.
Automatic Level Control—John Childs, Rolfes Elect. Corp., Boone, Iowa.
Car Unloader—Tom Hartman, The Superior Separator Co., Division of Daffin Corp.
Coffee Break.
Automatic Sewing Head—Iain Gray, Bemis Bro. Bag Co., Minneapolis.
Multomat Experimental Mill — Hans J. Koch, Miag Northamerica, Inc.
Desomatic Dehumidifier—Desomatic Products Div. of Atlantic Research Corp., Falls Church, Va.
Micro Mesh Sieves—A. W. Amundson, Buckbee Mears, St. Paul.
New Fumigation Regulations — William Schoenherr, Louhoff Grain Co., Danville, Ill.

12:00 Noon—Lunch.

1:30 p.m.—Moderator: Robert Ellis, International Milling Co., Minneapolis.
"Flour Tests—Their Meaning and Value" — George Trum, American Machine & Foundry Co., Richmond, Va.
"Methods and Evaluation—Particle Size Determination"—Dr. Ken Whitby, University of Minnesota, Minneapolis.
"Reduction of Wheat Middlings With Impact Grinders and Smooth Rolls"—Gordon Grosh, Winnipeg.
"Message From the Baking Industry."
"Mill Instrumentation" — John Wingfield, Colorado Milling & Elevator Co., Denver.

Wednesday, May 24

8:30 a.m.—Election of Officers.

9:00 a.m.—Moderator: Chris Mills, Ogilvie Flour Mills Co., Ltd., Montreal.
"World Wide Review of Milling Evaluation of Wheats"—Dr. John A. Shellenberger, Kansas State University, Manhattan, Kansas.
"Milling and Baking Quality Problems in Germany From Imported Wheats"—Dr. P. F. Pelshenke, Federal Research Institute for Cereals Industry, Detmold, West Germany.
"Measuring the Commercial Milling Value of Wheat" —William C. Shuey, General Mills, Inc., Minneapolis.
Coffee Break.
"Samplers, Sampling and Testing Wheat, Mill Process and Finished Products"—Ralph Bouskill, Maple Leaf Mills, Ltd., Toronto, Canada.
Panel of Above Speakers; Alden Ackels, Bay State Milling Co., Winona, Minn., Panel Moderator.

12:00 Noon—Lunch.

12:00 Noon—District Officers Executive Committee Lunch—Candlelight Room.

1:30 p.m.—Moderator: Ken Nordstrom, General Mills, Inc., Minneapolis.
Bellera—General Mills, Inc., Minneapolis, Minn.
"Potential Value of Kansas State University to the Milling Industry"—R. B. Laing, general manager, Abilene Flour Mills Co., Abilene, Kansas.
"Role of the Miller"—Dewey Robbins, Fisher Flouring Mills Co., Seattle.
Panel Discussion on Milling:
Stuart Butler, Maple Leaf Mills, Ltd., Toronto.
E. S. Dybevick, International Milling Co., Minneapolis.
Dr. Heinz Gehle, Director of Miag, Braunschweig, West Germany.
Highley Sugden, Henry Simon, Ltd., Cheadle Heath, England.

7:00 p.m.—Annual Banquet.

Thursday, May 25

8:45 a.m.—Mill Operating Efficiency:
Moderator: H. S. Gabbert, General Mills, Inc., San Francisco, Cal.
"General Maintenance in a Large Mill"—Don Pollei, The Pillsbury Co., Enid, Okla.
"Maintenance Improvement Through Planning and Scheduling"—K. M. McBrady, Quaker Oats Co., Oregon, Ill.
"Plant Electrical Maintenance"—R. W. McSherry, General Mills, Inc., Minneapolis.
"Maintenance"—R. F. Thuma, Allis-Chalmers Mfg. Co., Milwaukee, Wis.
"Maintenance for Sanitation"—Waldo Locke, General Mills, Inc., Minneapolis.
Mill Maintenance Panel — Panel made up of above speakers.

12:15 p.m.—Lunch and Tour—Courtesy of the Simon-Carter Co.

12:30 p.m.—Visit to Tennant & Hoyt mill, Lake City, Minn. — Transportation will be furnished by the Buhler Corp. Luncheon courtesy Buhler Corp. and Tennant & Hoyt.

3:00 p.m.—Plant Tours:
Durum Mill, International Milling Co., St. Paul.
Spring Wheat Mill, Atkinson Milling Co., Minneapolis.

LADIES' PROGRAM

Monday, May 22

12:00 Noon—Luncheon — Flame Room, Hotel Radisson; courtesy of Wallace & Tiernan Inc.

8:30 p.m.—Allied Trades Party — International Ballroom, Pick-Nicollet Hotel (all members).

Tuesday, May 23

12:00 Noon—Luncheon — Hall of Presidents, Hotel Leamington; courtesy of flour milling companies of Minnesota

Wednesday, May 24

8:30 a.m.—Breakfast — Waikiki Room, Hotel Pick-Nicollet; courtesy of Sterwin Chemicals Inc.

7:00 p.m.—Annual AOM Banquet—International Ballroom, Pick-Nicollet Hotel (all members and their guests).

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A Milling Technology Feature

New Techniques Using Impact Milling

By Austin T. Drake

THE grinding or reduction phase of flour milling is definitely the "heart" of the system. All other phases can be lumped under the one word "refinements."

Austin T. Drake

Since the very beginning, when early man pounded grain kernels with a rock to reduce them to powder, this phase has never been eliminated. The ability to control and regulate grinding is the yardstick by which the miller is measured. Since acceptance of the roller mill type of grinder, reduction of grain into flour has attained a degree of perfection rarely seen in other industries.

Grinding on roller mills is in itself an art because it has always depended so much upon the operator and his ability. Manipulations of the roller mill call for use of all his senses. As the operator prepares to set the roller mill he is using his hands to feel, his eyes to see and his senses of smell and hearing. Setting of the roller mill has allowed the miller a total expression of his abilities and is a soul-satisfying procedure. I have never met a flour miller who did not consider himself a good "grinder". He is indeed; in fact, he has attained a master's degree in a very difficult art.

Different Grinding Media

Realizing this, it is not very difficult to see why large numbers of operative millers have not been won over to a different type of grinding media. This is not to be construed as a criticism of the flour miller, but rather as a compliment. It means that machinery finds its way into the flour milling "flow" via a route that has discouraged those manufacturers of equipment who have nothing actually to contribute except the "fast sell."

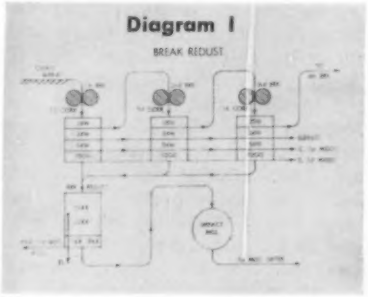
Today, acceptance of impact milling has been accelerated by the work accomplished in flour refining. In this position the impact mill is accomplishing work which cannot be done by the roller mill to any degree of satisfaction and has, therefore, received its baptism without serious competition. However, the ultimate goal for impact milling is not the refining of flour, but the actual replacement of roller mills, or other grinding media, in normal milling operations. I do not imply that the impact mill will replace all present roller mill operations, but that it will be used in conjunction with roller mills to improve performance of the roller mill and shorten the gradual reduction system as we know it today.

I propose to show and explain a series of impact mill installations presently used in flour mills. These illustrations have been taken from projects I supervised and which have been found definitely acceptable by the miller. The impact mills employed in these installations were produced by American manufacturers. I have had no experience with foreign imports.

The illustrations are simply sketches which show location of the impact mill in the mill flow and give some idea of the type of product it is working on and the destination of the ground material it produces. The illustrations are not so detailed as to invite criticism from technicians who will examine them, or to be in the position of stating that this is the only way the flow could be arranged.

Diagram I, Break Re-dust, shows what is usually one of the first impact mill installations to be installed following a miller's expressed interest in trying out this type of milling and his wish to obtain maximum benefits from a small investment.

Most milling flows contain a sifter section called "Break Re-dust" to which is consigned the flour and fine pure middlings produced by the first three breaking operations on wheat. Although Diagram I does not show



any flour cloths, many times these are incorporated in the break sifters, but not to the extent where all flour produced has been sifted out. In the Break Re-dust sifter section, any flour, that is finer than 10XX-11XX silk, is sifted out of the product and that remaining is separated into two or more particle size ranges.

As shown in Diagram I, this is taken care of by cloths in the range of 7XX-9XX fineness. That product which is coarser than these cloths is normally consigned to fine first middlings. The product dusted through the same cloths is very pure as far as ash is concerned and only requires reduction in size to be incorporated into the flour stream.

This is very easily and efficiently accomplished on the impact mill set

In reviewing and researching the work which he has done with impact milling during the last 10 years, while employed by two different equipment manufacturers, Mr. Drake has arrived at one definite conclusion: It is not difficult to manufacture an impact mill, but it is very difficult to gain general acceptance for its use in the flour milling industry. The reason for this difficulty, as Mr. Drake has come to see it through 16 years as a flour miller, lies in the flour miller's own highly developed "art" which makes him a "good grinder" with present systems of roller mills. Mr. Drake is manager of the grain processing division of Sturtevant Mill Co., Fostoria, Ohio. His paper was presented before a recent meeting of District 14, Association of Operative Millers, in Denver.

to produce approximately 100% of this material to a degree which will pass through an 11XX silk. The product from the impact mill can be consigned to the first or second midds. sifter along with that which was handled on the rolls.

Better Grinding Control

This installation dramatically reduces the load on second midds. and allows for better control of grinding at that position. Some millers will argue that in this arrangement the "cushion" has been removed which they are presently encountering on their fine first or second midds. roller mill. They are of course right, because the "cushion" has been eliminated and the fine first midds. roll is now operating on a more granular product which is more uniform in particle size.

They should be able to grind this product much more efficiently on the roller mill than when they were handling a product not uniform in particle size and which was composed partly of material to which the roller mill does not impart its greatest grinding ability. Millers who have placed the impact mill on the break re-dust stream, as shown, have found it much easier to set the first and second midds. rolls. And a much cooler, more efficient grind is obtained. In a mill which has adequate break surface, allowing for an increase in the amount of wheat going to first break, an immediate increase in mill capacity can be had. I recall an installation in a 5,000 cwt. flour mill, grinding hard winter wheat, where the mill was able to produce an additional 100 cwt. flour per day by this simple installation. In this particular case the former mill flow utilized a series of middlings mills or "buckleys" to which were consigned not only dustings from the three breaks but also dustings from sizings and coarse first midds.

All of these stocks were consigned to the impact mill and the buckleys eliminated. I have not contacted this particular mill for over a year and assume they have gotten even more hundredweights per day increase as they work with this unit. Normally, the impact mill is set on the floor above the roller floor with an exhaust pipe from the impact mill connected to the regular roll suction line.

The product from the impact mill, if it is a gravity discharge type, would be consigned to the elevator which handles the product from the fine first or second midds. rolls.

As stated before, this is the installation for the impact beginner. It can be accomplished with the least expense and without changes in the mill flow. Once installed and operated, it is a "sure fire convincer" and will break down resistance of even those strongly prejudiced in favor of the roller mill.

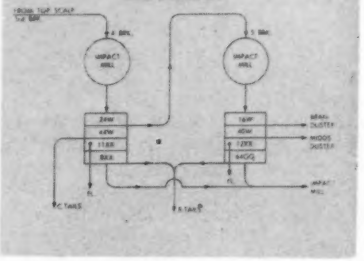
Fourth and Fifth Breaks

Diagram II, Fourth and Fifth Breaks, illustrates use of impact mills as replacements for normal fourth and fifth break roller mills.

There has been increasing interest in this particular project in the last two or three years. It has found particular favor in soft wheat milling where the bran coatings are thick, tough and require considerable cleaning before they are in a condition which will permit consignment to feed. Some mills have worked around this problem by installing dusters between fourth and fifth break, or changing the type of bran duster from the beater-type back to the upright-brush machines which were very popular many years ago.

Diagram II

4th & 5th BREAKS



In actual practice a bran duster following the installation of impact mills on both fourth and fifth break is sometimes omitted because of the clean condition of the bran from the sifter section on fifth break.

Also, there are cases where fifth break has been eliminated altogether by placing impact mills on the fourth breaking operation. I imagine the question which would exist in most millers' minds when looking at Diagram II would be concerned with the amount of breakage of bran flakes and the amount of resulting fine dust which would find its way into the flour and separates made on the dusting cloths.

In actual practice, some alteration of the scalping and dusting cloths would be called for, but it actually is not a serious problem, nor is the bran shape seriously altered. The degree of impact is reduced between fourth and fifth break, with the fifth break material receiving less impact than the fourth.

Variable Speed Drives

Also, it would be desirable to equip one or both of these mills with variable speed drives to compensate for changes in moisture levels of the wheat or deteriorating condition of the break rolls which precede this operation.

A very important fact, for consideration in the future, emerges from this type of installation. As the impact mills are individually driven by motors, they can be controlled as to degree of impact, in the case of the variable speed drive, by electronic sensing devices. The mechanism which operates the variable speed drive can be equipped with a hydraulic piston actuated or controlled by solenoid valves. These valves themselves can be controlled by devices which can constantly determine weight or volume of a product while in transit and which can be so set that the impact mill, via the variable drive, will increase or decrease in speed as the weight of a moving stream changes.

For instance, the stream coming from the second break sifter to the third break roll could be constantly metered. Should the amount increase or decrease, due to varying moisture levels or some other change, the impact mill on fourth or fifth break would increase or decrease its impact action to constantly produce a clean bran for feed. I would imagine a device such as this would pay for itself time and again by the amount of good flour product saved from incorporation in the feed streams.

Impact mills have been tried, with some degree of success, even further ahead in the break system than is shown in Diagram II. However, I believe the present corrugated roller mill is ideally suited to breaking open of the wheat kernel and dislodgement of endosperm and germ through at least the first and second breaking operations. As kernels are opened and the bran layers progressively flattened, efficiency of the roller mill falls off because it is necessary to decrease tolerance between the rolls, and there are chances of the roller mill working against itself by adding sufficient pressure to cause endosperm to be impregnated on the bran layers in a manner which makes it very difficult to remove.

When this occurs, it is perfectly logical for a different type of reduction unit to take over and finish opera-

tions on the stock which has been suitably prepared by the corrugated rolls. As indicated by the present usage of beater-type bran dusters to finish off bran from roller mills, the beating and impact action imparted by most impact mills is an improvement over roller mills on fourth and fifth break.

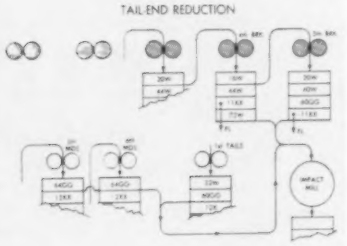
Use of impact mills in the break system should be thoroughly investigated by soft wheat mills in the southeastern U.S., and elsewhere, where garlicky wheat is encountered. Corrugations on roller mills soon glaze over with garlic mash, particularly on the finer corrugations. This glaze must be washed out of the corrugations at frequent intervals or capacity and yield are sharply reduced. With no close tolerances existing, and with absence of pressure, garlic in the wheat would not affect performance of the impact mill.

Tail-End Reduction

In yesterday's and today's long gradual reduction system, considerable benefits can be derived by use of impact mills on the "tail-end reduction" portion of the mill flow. In Diagram III note that products obtained from fourth and fifth break, along with top scalps of later reductions and

Diagram III

TAIL-END REDUCTION



second scalps from first tails, can be thrown together and reduced in one operation on an impact mill.

Normally, these products are consigned to second tailings smooth rolls and first low grade smooth rolls. In my experience I have seen, and worked with, flour mills which have had as many as nine middlings, two or more tailings and three to four low grade reductions. To me this approaches the ridiculous. Placement of roller mills to operate on products which have been produced from prior roller mill operations simply does not make sense.

The tail-end reductions system in most mills is there because the operations which preceded it produced a product which was not in the original endosperm makeup. Starting from the first middlings reduction, the endosperm, on its way to becoming flour, goes through many smooth roll operations and sifter sections and becomes progressively contaminated and woolly in nature. Pressure, heat and attrition of the roller mills present to the tail-end reduction a conglomerated mass of fiber and cellular wall material, held together by a combination of oil and starch.

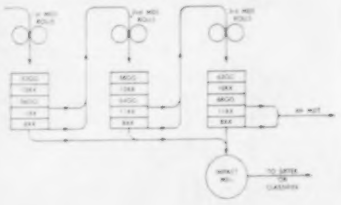
The flour produced is normally inferior in grade, color and ash and protein evaluations. Yet the miller, acting as though he knew of no other grinding media, continues to add roller mill after roller mill before finally allowing the product to escape to the feed bin or into a product called by some "red dog."

This compounding of an error can be stopped immediately by consigning these stocks to an impact mill which will not use pressure and attrition to effect a dusting-out of the last remaining vestiges of flour from this conglomeration. The impact action required for this operation is surprisingly small. Also surprising—and gratifying—is the number of smooth rolls, elevator legs and sifter sections freed by this breaking off of the tail-end reduction system. In one case which comes to mind the miller was able to free for other usages two and one-half double stands of roller mills, two elevator legs and two sifter sections on the tail-end of his mill. A visitor to this mill would have some trouble finding the small impact mill which has replaced this mass of grinding, elevating and sifting machinery.

Diagram IV, Primary Midds. Dustings, is somewhat similar to Diagram I on Break Re-dust. Here again an additional separation is made to segregate a product which is pure flour in its chemical analyses but has not been reduced to a size which will allow for incorporation in the flour stream. Dusting cloths, in this case 8XX silk, are placed in the sifter sec-

Diagram IV

PRIMARY MIDDS DUSTINGS



tions handling the first three middlings reductions. In some mills these dusting cloths are already incorporated in their flow and the product is sent to separate roller mill reductions.

Many mills, however, following a top scalping operation for the removal of fiber, send to the next reduction roll everything which is over the flour cloths. In this case the following roll would be grinding a product which analyzes between 50 and 120 mesh. When dusting cloths are in use the roller mill will operate on a product ranging between 50-80 mesh in size. This means that a more uniform granular product is being sent to the roller mill and the efficiency of its type of grind is increased.

Here again, we have removed the "cushion" which some millers seem to feel is beneficial to their grinding operations. In removing this "cushion" we have decreased considerably the amount of material consigned to the roller mill, resulting in less surface required with less horsepower per roll

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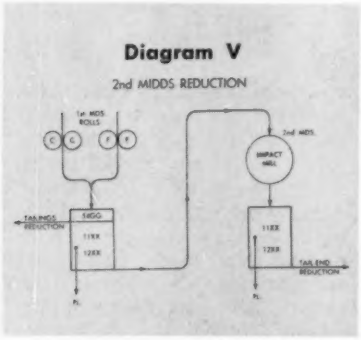
Using Impact Milling (continued)

stand. The product of the dusting cloths, as stated before, is sufficiently low in ash and can be treated to reduce it to 100% being found in the flour grade size.

I have found that the best roller mill operation will result in only approximately 70-75% reduction to flour from any stream of endosperm regardless of its purity. Even then, in producing this 75% reduction, the roller mill produces another product because of its tendency to flatten particles and also to rupture starch cells. It has been quite thoroughly proven that a great deal of impact can be imparted to endosperm without serious rupture of starch cells and, of course, as there is no pressure or shear involved, no elongation of particle size occurs.



Second Midds. Reduction

Diagram V, Second Midds. Reduction, is my favorite. It appears quite innocent and simple on the diagram shown, but it is most certainly a "sleeper".

In the past this particular installation has been attempted only by the brave, or those millers who have gone through the other steps of gradually acquainting themselves with impact mill installations. Although not shown on this simple diagram, there would be other stocks routed to the second midds. reduction as in normal practice. Clean stocks from purifiers and dusting stocks from sizings are normally consigned to second midds. along with the overs of the flour cloths from the first midds. reduction sifters. In most flour mills, whether they may be grinding hard or soft wheat, the second midds. stock contains the greatest quantity of pure endosperm and is free of many of the bran fragments and impurities that exist in the stock going to the first midds. rolls.

Also, it is true that the greatest percentage of flour is normally produced in the second and third midds. reductions. Material coming from the first midds. sifter has been further purified by action of the first midds. rolls, and most high ash material has been scalped off in the first midds. sifter sections.

The stocks coming from sizings and purifiers have also received benefit of the roller mill action on fiber and aspiration and separation which takes place on the purifiers. This obviously is the place to really "shoot the works" and attempt to get the greatest possible amount of flour at this point.

Pure endosperm which is not ground to correct particle size for incorporation in the flour streams must, in the normal flow, receive repeated actions on the roller mills which follow, and in its progress through the reduction system loses its pure state, becoming more and more contaminated. Second midds. stock is at the head end of the reduction system and the bran particles contained therein have not lost enough moisture to make them brittle and, therefore, are not easily reduced to a size comparable to flour. The reduction accomplished on an impact mill in this position can quite easily reach the 75% extraction obtained under ideal conditions by roller mills, without serious rupture of starch cells or elongation of some good flour particles.

In fact, it is preferable in this installation that the impact mill produce 90% or more of this product directly to flour size. A very dramatic performance obtained by an impact mill in this position was demonstrated to me recently in one of our customer's mills.

Placed in Mill's Flow

An impact mill of Sturtevant design was placed in this mill's flow in position described by Diagram V. This particular mill was in the soft wheat area and utilized four breaks and six reductions on roller mills.

The flow of this mill contained no purifiers whatsoever, something which may never prevail in hard wheat mills but is most certainly not new to soft wheat milling. In fact, use of purifiers in soft wheat milling in the U.S. has been on the decline for at least a decade. Total production of this mill, before installation of the impact mill, was approximately 40 cwt. per hour produced on six double stands of roller mills.

In order to install the impact mill, this customer removed two of the double stands of roller mills which were used to grind second, third, fourth and fifth midds. The first middlings rolls were retained and the overs of the flour cloths from the first midds. sifter were sent to the impact mill along with selected streams from sizings and the break system. The load to the impact mill was approximately 3,200 lb. per hour and of this material the impact mill reduced, to a flour grade, 96%. The sifter section receiving the ground material from the impact mill contains only flour cloths and the overs of the flour cloths are sent to a tail-end roller mill formerly used for six midds. reduction. Therefore, the installation of the impact mill quite drastically changed the gradual reduction of this plant to the shortest system that has ever come to my attention. The output of this flour mill is now approximately 45 cwt. per hour, of which the impact mill is producing 30 cwt. per hour.

No Adverse Effect

In other words, the impact mill is responsible for 67% of the entire output of this mill. In no way did installation of the impact mill adversely affect quality of the total flour stream, but actually showed an improvement. Ash of the flour was not increased and the color was much improved. There were changes in viscosity and absorption, but for this particular mill's customers they also showed improvement. The yield figure before installation of the impact mill was running, on clean wheat, approximately 2.34 bu. and, after installation of the impact mill this yield figure was reduced to 2.28 bu. More about this unusual installation will be heard in the future as we secure permission to release the entire story.

For the purpose of re-grinding flour for subsequent refining on air classifiers there is no question as to superiority of the impact mill compared with a roller mill. Placing a roller mill on wheat flour, which is already below 125 microns in particle size, certainly puts it at a disadvantage and beyond the scope of its design.

Wheat flour normally is not only below 125 microns at the top level but also contains very large quantities below 44 micron size. When trying to operate a roller mill on this material the tolerance which should exist between the nip of the rolls is set, for all practical purposes, at zero clearance. At this position the forces of pressure and shear are actually in-

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Flour Particle Reduction (continued)

jurious to wheat flour composition, and serious rupturing of starch cells takes place.

Temperature of the stock also rises and considerable flaking will take place even on the most carefully operated roll stand. The purpose behind re-grinding of flour is actually twofold. In one case the mill wishes to produce a flour of finer texture than can economically be produced on the sifters, which are limited to the amounts of flour that can be sifted through cloths finer than 150 mesh. An impact mill operating on finished flour can reduce the micron average size of the flour, without serious rupture of starch cells.

The very finest of the flour in many cases will receive a free ride through the mill, with most of the impact action imparted to the heavier and larger particles. This results in bringing larger particles down closer to the size of the smallest, and results in a more uniform, finer-textured product. This has proven extremely beneficial in the production of high grade cake flours. The other purpose of the impact mill in flour refining would be to dislodge whole starch cells from the protein matrix of the endosperm, and in so doing reduce the size of the matrix to a point where its greatest percentage would be found in the extremely small micron range. This flour then is sent to air classifiers, where the classifiers will separate out the small micron ranges and effect a considerable shifting of protein value of the remaining coarser material.

Flours, from both hard and soft wheat, can benefit from air classification without introducing a grinding media prior to the separation; but, in most installations, the benefits derived from a re-grinding operation have proven the installation of an impact mill very desirable. The flour refining system, incorporating a re-grinding stage, can be utilized not only at the end of the milling system but also in intermediate positions, such as some of those described in the other impact mill installations. For instance, an excellent place for air classification, following an impact mill, would be on the installation in Diagram V, "Second Midds. Reduction." A very substantial protein shift could be effected at this point rather than waiting until the flour streams were combined to form patent or clear grades.

I explained, at the beginning of my presentation, the difficulty in gaining general acceptance of impact mills from the flour millers. The thought has often occurred to me that perhaps it would be even more difficult to sell a roller mill to a miller if impact milling had come into being before acceptance of the roller mill.

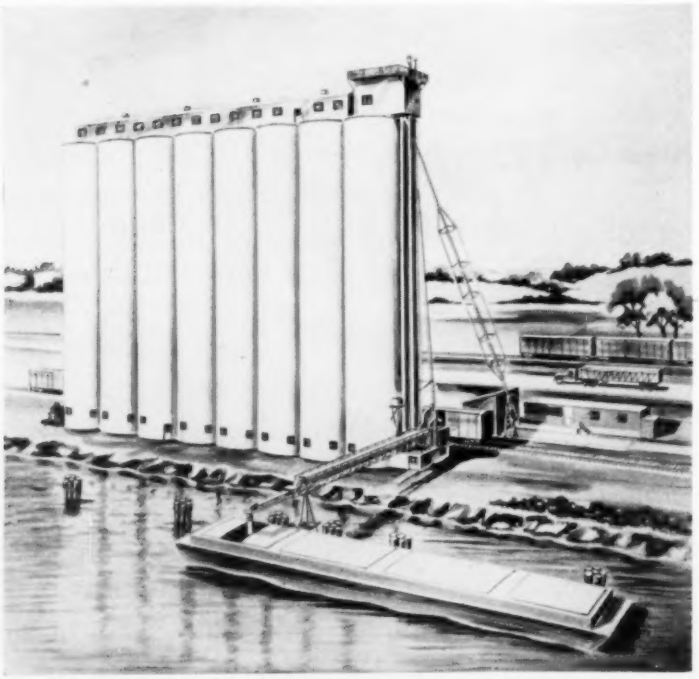
What would be the reaction of the miller if I attempted to persuade him to replace his impact mill using four bearings with my double-stand roller mill with 14 bearings? How would he react to my further explanation that he would require operators to adjust each end of the roll periodically during the day's run, and that the motivating force would be in the form of flat leather belts requiring considerable maintenance?

Would he be interested in my roller mill if I told him that the available grinding surface of the four rolls was equivalent to 1,695 sq. in., but that actual grinding surface between the rolls was only 90 sq. in.?

I wonder if he would be interested in providing line shafts and hanger bearings and belts in order to convert from individually powered impact mills to lines of roller mills serviced by one large motor.

Would he reach for an order blank when I explained that some of the rolls are corrugated and the corrugation starts to deteriorate from "start-up time," requiring that the rolls be re-corrugated at intervals to prevent a yield loss in his operations? Would he be willing to widen and lengthen his grinding floor, as well as strengthen the floor itself, to contain the number of roller mills required for his operation and to support the many tons of weight which would be added to his floor?

When I ask myself these questions, and consider the obvious answers, I am happy with status quo and feel fortunate that the impact mill is coming into acceptance at this later date in milling history. «



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Part III

The Flour Milling Industry

An Economic Study of Excess Capacity

By Dr. Donald A. Markwalder

MEASURING INDUSTRY CAPACITY

WE shall now attempt to apply our theoretical or conceptual measures of capacity to the flour milling industry to determine if capacity and excess capacity in the industry can be quantified.

There are two concepts of plant capacity which are available for the flour milling industry. These are: (a) Rated capacity and (b) theoretical or economic capacity. Let us now define each term and attempt to apply it to the flour milling industry.

RATED CAPACITY

Rated capacity of a plant is that output which engineering estimates or ratings say the plant is capable of producing, basis 24 hours of operation.

Even though fairly accurate rated capacities do exist for plants in the flour milling industry, can they be added to get a meaningful rated capacity for the industry?

Since plants in the industry are far from identical, it is not correct to add rated capacity of all plants in the industry and say that each plant will be producing at rated capacity when one plant is producing at rated capacity. Even assuming each plant possesses access to freely available factors and faces a revenue curve which is infinitely elastic, some firms will have low costs and will produce in excess of rated capacity while high cost firms are producing at less than rated capacity.

In addition, might it not be true that many firms have such high costs that their rated capacities must be excluded when computing rated capacity of the industry? It is our belief that plants having rated capacities of less than 400 cwt. daily should be excluded when attempting to compute rated capacity of the flour milling industry, since all of these plants have very high costs and normally operate at an extremely small percentage of capacity.[1] We will assume—somewhat arbitrarily—that rated capacity of the industry is the sum of the rated capacities of the plants in the industry having a rated daily capacity of 400 cwt. or greater. Of course, some of these plants have higher costs than others, but when the industry is producing at rated capacity, the high-cost plants will be producing at less than rated capacity while the low cost plants will be producing at above rated capacity.

THEORETICAL (ECONOMIC) CAPACITY

Theoretical or economic capacity is then simply daily rated capacity times the number of working days in the year, with an allowance for breakdowns and seasonal variations.

If we assume a six-day week and six paid holidays, theoretical capacity would then be rated capacity per day times 306. However, we must make further allowance for unavoidable interruptions in production. Among such normal and expected interruptions are those resulting from breakdowns and repairs, fumigation, boxcar shortages and strikes.

The allowance which should be made for such interruptions of production cannot be precisely determined, so we will follow the Bureau of the Census and assume that theoretical capacity is 300 days per year. This means that our allowance for unavoidable interruptions in production is six working days per year.

If we made an additional allowance

[1] In addition the output of these small mills is usually marketed locally, and thus their capacity is of limited importance in the national market. Proof of this will be presented farther along.

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for seasonality of flour demand and wheat availability when computing theoretical capacity, the theoretical capacity might be slightly less than 300 days per year. However, since the Bureau of Census usually assumes that economic capacity is 300 days per year, and since the amount of allowance which must be made for seasonality can by no means be precisely determined, we will assume that theoretical capacity is 300 days per year.[2]

Industry Seasonality

Part of the seasonality in the industry results from the seasonality in flour demand; however, it would appear that no further capacity allowance need be made for either type since the foregoing capacity operation of a firm during periods of peak seasonal production would be balanced by below capacity operation of the firm during slack seasons. During the 14 crop years ending with 1956-57, the daily average of flour output was .953 million cwt. daily. Table 1 shows the daily output by months for this 14-year period.[3]

TABLE 1

Daily Average Flour Output By Months

Crop Years 1943-44 Through 1956-57

Average Daily Output

Month	000,000's of cwt.
January	1.03
February	.99
March	.93
April	.88
May	.90
June	.90
July	.90
August	.95
September	1.01
October	1.01
November	.97
December	.97
Annual daily average	.953

Source: Bureau of Census.

The six consecutive months for which daily average flour output is highest are September through February. For this six-month period flour output averages 1 million hundredweight daily. For the six remaining months flour output averages 0.91 million hundredweight daily.

Theoretical Capacity

Even though flour output for the six consecutive months of highest output, September through February, averages approximately 10% greater than for the six consecutive months of lowest output, March through August, it would not appear that any further allowance should be made for seasonality when computing theoretical milling capacity.[4]

Both of the foregoing measures of capacity usually assume an unlimited supply of labor and raw materials, and will be used even though it has been admitted that variable factors such as labor and raw materials are not always "freely available."

The assumption of freely available factors is no more than the assumption that the purely competitive firm takes factor prices as a parameter. If some assumption is not made as to factor prices or as to the slope of factor supply schedules, it is not possible to even estimate capacity and excess capacity in an economically meaningful manner.

The concepts of plant and industry capacity which we shall use later on assume infinitely elastic factor—especially wheat — supply schedules because this seems to be the most reasonable assumption which can be made. Farther on in this thesis, however, we will attempt to show how the slope of wheat supply schedules has changed over time and also how this change has affected plant and industry capacity and excess capacity.

Conceptually at least, our definition of industry capacity is quite unambiguous. Whether or not plants are identical, industry capacity is the sum of the low cost outputs of each firm in the industry.

However, measuring industry capacity is quite a different matter from giving a theoretical definition of it. As we shall see later, even the much simpler task of empirically deriving the short-run cost curve for a single plant is an exceedingly difficult one.[5] Economic theory often abstracts from time and space in order to simplify. For this reason too it is exceedingly difficult to empirically measure actual excess capacity.

If transport costs were zero and seasonality not present, firms could secure raw materials at identical prices and operate at uniform rates throughout the year. Then only the difficulties introduced by non-identical cost and demand curves would have to be faced in actually measuring capacity and excess capacity. As it is, all of the foregoing difficulties mentioned are present, and it is not possible to precisely measure capacity and excess capacity. In most cases we can "measure" capacity and excess capacity only by making rather crude estimates. Nevertheless, we will try to show that our estimates are not so far off that excess capacity has not existed and persisted,[6] and we will try to explain why it has persisted.

SUMMARY

We have now defined capacity for a competitive industry, showing that when the industry is operating at capacity it will be in aggregate equilibrium earning normal profits. We have shown the conditions which will lead to excess capacity in a competitive industry.

Among these are a decline in demand throughout the entire market, a regional increase in demand with aggregate demand remaining constant, and a regional decline in costs. We have also shown that the more inelastic industry demand, the greater the amount of excess capacity brought about by any of these changes.

Turning to the monopolistically competitive firm and group we have seen that the steeper the slope of firm revenue curves the greater the amount of excess capacity existing in long-run equilibrium. We have pointed out the types of changes which will transform excess capacity which is consistent with long-run equilibrium under monopolistic competition into excess capacity which must be eliminated to reach long-run equilibrium. We have also shown what types of changes will cause monopolistically competitive firms to construct additional capacity in spite of the existence of excess capacity which is not consistent with long-run equilibrium.

We have seen that a flattening of revenue curves will reduce prices and profits in the group below the previously existing level even with industry demand unchanged, reducing the

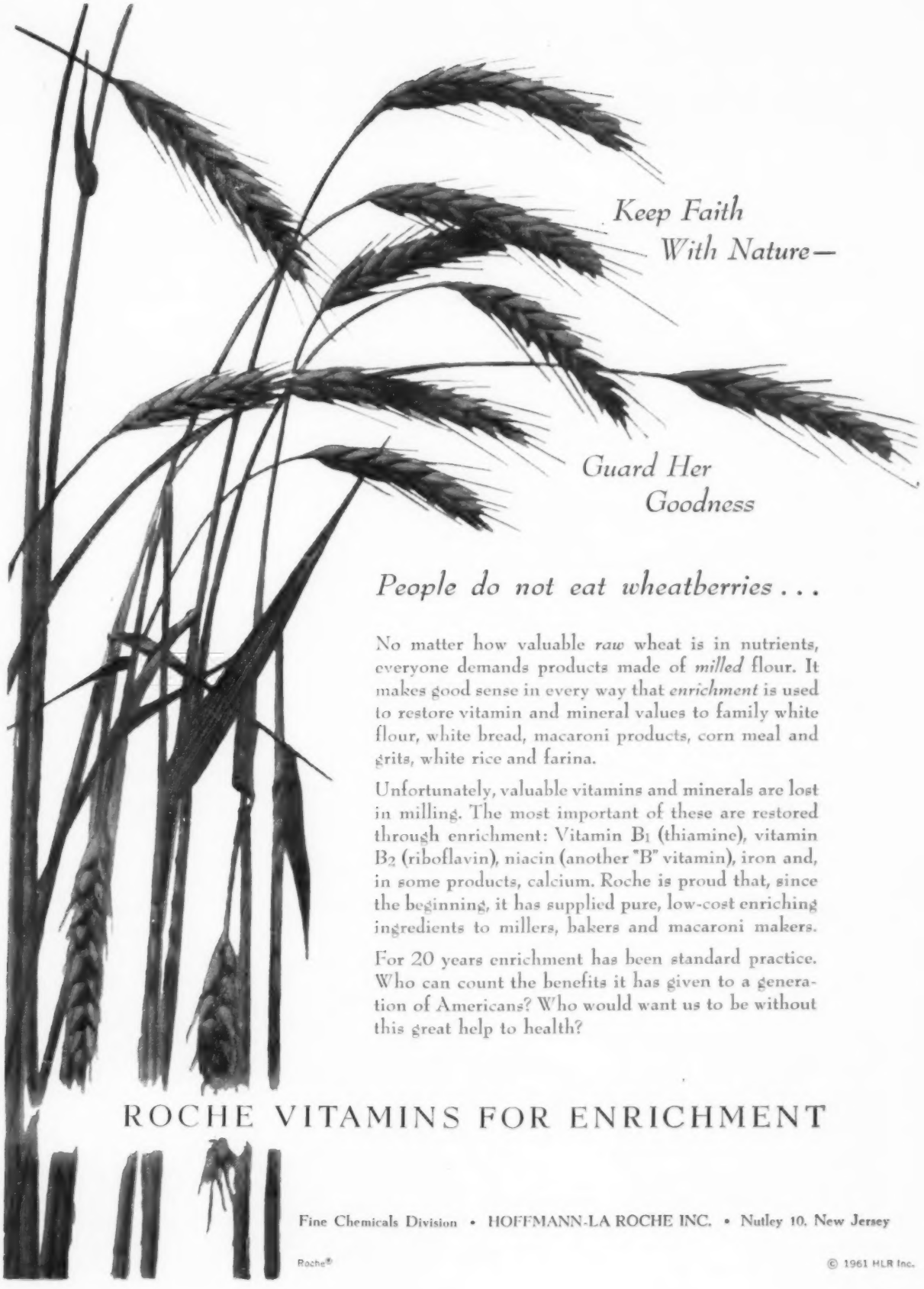
[2] As we will show later the number of days which a mill must operate to secure lowest average unit costs varies over time and among different mills at the same time. In general, the number of days is greater for a new mill than for an old one.

[3] The six major holidays have been excluded in computing this daily average.

[4] An allowance might be made if the average cost curve were much flatter to the left of its low point than to the right. This, however, cannot be demonstrated to be the case in the milling industry.

[5] One might then argue that we are agreeing with Zabel and admitting that technological measures of plant and industry capacity are useless in determining practical economic capacity. This author does not agree. We are not arguing that technological plant capacities are useless from the viewpoint of economic theory, only that they are not completely satisfactory. It is not essential to our thesis to quantify actual excess capacity, but only to show that it has existed and how and why its existence has been perpetuated.

[6] In addition, indirect evidence of the existence of excess capacity is presented, such as the low rate of profit in the industry and the decline of actual capacity.



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amount of excess capacity which is consistent with long-run equilibrium. We have also shown that if unrealized economies of scale exist, the flattening of revenue curves will probably lead to construction of additional capacity in spite of the existence of both excess capacity consistent with and inconsistent with long-run equilibrium.

In the foregoing analysis we have been assuming pure competition in the factor market. Then assuming monopoly in the factor market we have shown that a flattening of factor supply curves will usually increase capacity output of each firm and thus lead each to attempt to increase its actual output. If industry (or group) demand is zero elastic, however, the attempt of each firm to increase output must be unsuccessful. Prices, margins and profits will be reduced until some capacity is eliminated. We have shown that, if unrealized technological economies of scale exist, a flattening of factor supply curves may tend to cause additional capacity to be constructed in spite of the existence of either or both excess capacity which is or is not consistent with long-run equilibrium.

We have now explored the difficulties that prevent actual capacity and excess capacity from being precisely measured. Conceptually, capacity may be quantified, but as a practical matter only rather crude estimates are possible. We contend, however, that for our purposes a precise quantification of capacity and excess capacity is not necessary. «

Dr. Markwalder will move on in subsequent discussions to explain how factors capable of causing and perpetuating excess capacity, particularly the factors outlined in Part II, have been those which have troubled the flour milling industry.

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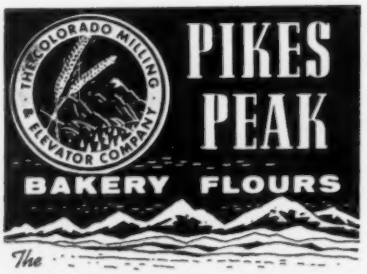

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For Current Reading . . .

• Booklets • Pamphlets • Trade Reports

"HONEY IMPROVES BAKED PRODUCTS"—Bulletin No. 411, Agricultural Experiment Station of Kansas State University, Manhattaan, Kansas. This is a 23-page booklet which explains the composition of honey as an ingredient, its availability and suggested uses in baked foods.

» »

"FOOD RESEARCH INSTITUTE STUDIES," a periodical started in 1960 and issued three times a year, February, May and November. It contains articles written by staff members of the Food Research Institute of Stanford University. Articles are in the general field of food and agriculture. Subject titles have included: "Food for Peace" by Joseph S. Davis; "Speculation on Hedging Markets," Holbrook Working; "American Wheat Exports, Policies and Prospects," Helen C. Farnsworth, and "The Characteristic Bias in Some Thin Future Markets," Roger W. Gray. (Available from the Food Research Institute, Stanford University, Stanford, Cal.; $2.50 single issue; $7 per year.)

» »

"CAUSES OF OUTBREAKS OF STORED-GRAIN INSECTS" — Bulletin No. 416, Agricultural Experiment Station, Kansas State University, Manhattan. This is a 35-page technical treatment of the subject, complete with charts and graphs. It contains material by Richard T. Cotton (retired) and H. H. Walkden, stored-products insect section, Agricultural Marketing Service, U.S. Department of Agriculture, and D. A. Wilbur, Professor, Kansas State.

» »

"GRAIN TRADE OF CANADA 1958-59"—Annual statistical compilation; covers grain from acreage, yield and production through prices, exports, freight rates; five-page section at the end on flour milling. (Available from the Statistics Branch, Agricultural Division, Dominion Bureau of Statistics, Ottawa; $1.50 a copy.)

» »

"SUCCESSFUL SUPERVISION"—A multicolor brochure, spiral-bound on sturdy paper with pockets containing detailed pamphlets on the various phases of management and supervision. Subjects covered include effective communication, accident prevention, job instruction, understanding basic motivation, establishing and maintaining successful executive-supervisor relationships, among others. Pamphlets are designed for group discussion. Brochure itself is printed in large type and would be suitable for group presentation from an easel. (Available without charge from the Elliott Service Co., Inc., 30 N. MacQuesten Parkway, Mount Vernon, N.Y.) «

» »

"FOOD FOR THE FUTURE—THROUGH RESEARCH"—Agricultural Information Bulletin No. 220, U.S. Department of Agriculture. This is a 32-page booklet, mainly diagramatic pictures. It charts the role played by research in meeting the food requirements of growing U.S. population and projects food requirements in several categories through 1975. (Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C.; price 25¢.)

» »

"TRUCK SHIPMENTS OF GRAIN IN THE NORTH CENTRAL REGION, 1957-58"—This is the second in a series of mimeographed publications on country elevator handling and shipping volumes in the North Central States compiled by C. P. Schumaier and C. L. Ahrens, members of the North Central Grain Marketing Research Committee. Total volume of grain handled by Iowa country elevators for the period and other states is summarized in tabular form. (Requests for copies should be addressed to the Bulletin Office, Iowa State University, Ames, Iowa; or to the Western Grain and Feed Assn., 401 Shops Bldg., Des Moines, Iowa; or to Richard Phillips, extension specialist, grain marketing, Iowa State University, Ames, Iowa.)

Where no price is stated the publication is presumed to be available without charge from the source. Readers are requested to submit orders to the sources listed.

Districts 1 and 2 Plan Joint Meeting

Districts 1 and 2, Association of Operative Millers, will hold a joint meeting at Manhattan, Kansas, April 7 and 8, with a full program planned. Members are being asked to bring their wives.

The opening day's session will be given over to registration, a social hour courtesy of the allied trades, and a dinner, all at the Wareham Hotel.

The speakers' program will get under way at 9 a.m. April 8 in the animal industries building on the campus of Kansas State University, with several key subjects to be featured. These will be: "Fighting Fires in Country Elevators," Fred Huttie, Jr., manager, southwestern department of the Mill Mutuals; "Methods for Determining the Milling Values of Wheats," Arlin Ward, the Pillsbury Co., Minneapolis; "Quick and Dirty Industrial Engineering for Millers," Prof. Irvin L. Reis, head of the department of industrial engineering, K-State, and "Experiences in Corn Milling," W. R. Wichser, manager, milling development, the Quaker Oats Co., Barrington, Ill.

Also of high interest will be a presentation by Prof. Eugene P. Farrell of K-State on the flow and arrangement of the K-State mill.

The two-day session will end with a luncheon at the Wareham. «

Agronomy Student Wins Standard Milling Grant

Raymond C. Long, a senior in technical agronomy at Kansas State University, Manhattan, has been awarded the $300 Standard Milling Co. scholarship given each year to the outstanding K-State student studying cereal crop improvements.

The student is from Arnold, Kansas, and was selected on the basis of scholarship and participation in college activities, according to R. V. Olson, head of the K-State department of agronomy. Mr. Long has been on the dean's honor roll for the past three semesters. He has earned his expenses by working at a Manhattan service station during the year and at the university's Ashland agronomy farm summers.

After receiving his B.S. degree in June, he plans to enroll in K-State's graduate school to work toward an M.S. degree in agronomy. «

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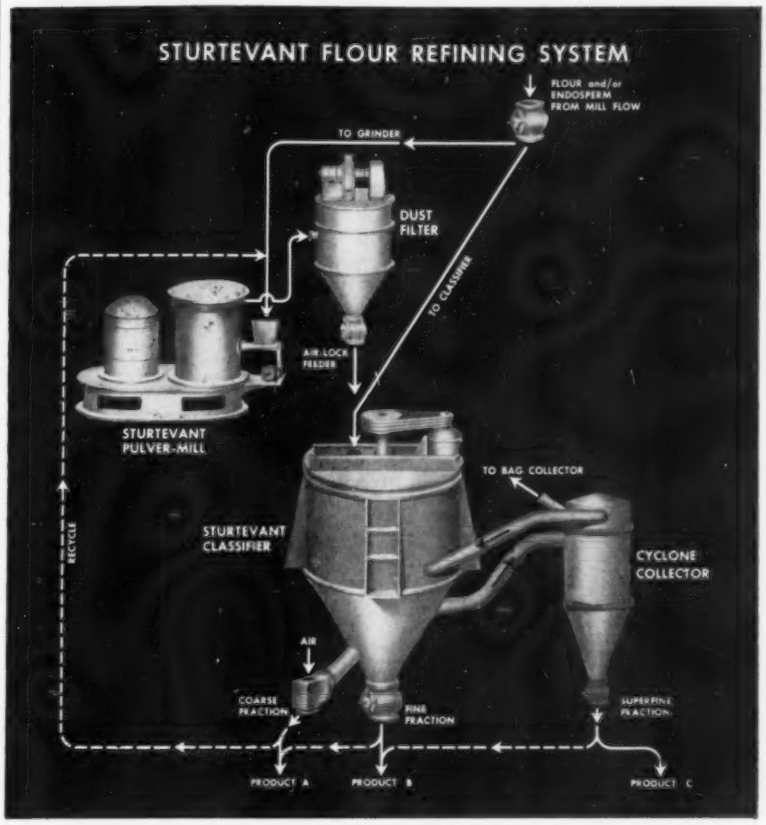

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A Milling Technology Feature

Natural Sugar in the Endocarp Layer of Bread Wheat

Its Effect on Flour Milling

By Theo. Earle

DESPITE the fact that the wheat berry has been "under a microscope" for untold years, nothing seems to be of record concerning the natural sugar (1) contents of the outer bran coats and/or their important role in aiding extraction of the valuable endosperm of the grain. This is probably due to the fact that until the present time no method was available to expose and separate the various layers of bran in sufficient amounts to give us more than an educated guess as to their importance to the flour miller.

Previously, methods were sought to separate and save the outer bran layers, and several have used excess water to loosen the epidermis (hereinafter called "wing") from the epicarp and lower layers. Large volumes of water, thus used, put much of the soluble portions of the three upper layers into solution, and hence they were lost. It is reasonable to assume that these soluble portions contained a binding material, and because of the nature of the two outer bran layers, it would logically be in the endocarp. Upon investigation it was revealed to be sugar, and located almost entirely in the endocarp.

With the advent of the process of "dry" stripping the grain, only enough water is used to soften the binding material holding the layers together and then to separate them. Thus the wing can be removed, leaving the epicarp free of wing, or the wing and epicarp, together, from the endocarp. In practice, for white flour milling these two layers would be taken off at one time. The epicarp layer shows, under microscopic study, to be a thin film of small volume, and is probably of minor importance in milling.

Readily Into Solution

To extract the sugar from the endocarp, after first removing the wing and part of the epicarp, the balance was stirred in warm water (100° F.) for a few moments to dissolve the natural sugars in the endocarp, and also, if present at all, in the epicarp fraction. The sugars go into solution readily.

On filtering and then boiling the filtrate, some of the epicarp portion rises in the water and can be skimmed off as a light grey scum. (The scum, on drying, turns to a dark grey mass —possibly one of the proteins.) Continued boiling to dryness permits the sugar to collect and harden. It can then be weighed, and is about 0.3% of the weight of the grain. It hardens to a sticky mass that is sweet tasting, brown in color, looking and acting like molasses (2). (The soluble part of the epicarp weighs less than 0.1% of the grain, and its elimination does not affect later milling results.)

We now know that with sugar loss in wet or "peeling" methods of removing the top bran coats, little was left on the grain to hold it together when milled for flour, and the grains further dried and shrivelled. (Test 6, Table II.) In the stripping process such a small amount of water is used that the sugar remains in the endocarp (Test 7, Table II), and as the water is absorbed into the grain the sugar rehardens as a coating rather quickly, making layers that hold the lower bran coats together, and preventing their splintering.

The epicarp is, apparently, only loosely bound to both epidermis and endocarp, but the endocarp is tightly held to the testa coat and hard to remove from it. Thus, ordinary stripping leaves it and its sugars in place and, with the small amount of water used, the sugar is softened but not dissolved. Further addition of water for tempering does not interfere with this recementing; in fact, such addition may be of benefit.

For best flour milling, between 3% and 4% wing should be removed (Test 3, Table I). Wing loss over 4¼% may cause loss of sugar and consequently the milling results are poorer. (Tests 2 and 4, Table I.) Mill runs as large

1. "Sugar" refers to invert sugar.

2. The stripped endocarp of Montana Spring Wheat is a brown color and seems tough and pliable. The typical bran from this wheat, after flour milling, looks (under a microscope) chapped and roughened due to the compaction and rubbing of grain against grain under controlled pressure when in a softened condition. By hard rubbing, some of the endocarp can be taken off; it comes off in small particles rather than like wing flakes; it tastes sweet.

Here's an interesting thought: If it is found that natural sugar is a controlling factor in standard milling, it might be the difference between a good and a poor wheat. Mr. Earle elaborates on this point in the accompanying article. He is an engineer who has done considerable research work on wheat and is credited with developing the Earle stripping process which bears his name. He obtained his engineering degree from Columbia University, makes his home in Pacific Palisades, Cal. Mr. Earle has an associate, Dr. Preston H. McClelland, who is engaged in the practice of internal medicine. Dr. McClelland, a graduate of Rush Medical College, Chicago, is interested in the stripping process because of its apparent advantages to the consumer.

TABLE I

Flour recoveries after varying amounts of wing were removed. All tests were run on re-cleaned Montana spring bread wheat. All assays were made by Doty Laboratories, Inc., North Kansas City, Mo.

	% wing off	% patent flour recovered	% ash in patent
1. Control	none	62.7	0.446
2.	4.55	70.10	0.510
3.	3.75	72.22	0.410
4.	4.35	72.80	0.439

Note: Sample 2 indicates too much wing and sugar off; high ash. Sample 3 shows proper wing removal; good recovery and low ash. Sample 4 indicates that over 4¼% wing loss with this wheat yields poorer over-all results.

TABLE II

Total sugar as invert left in the bran and shorts (5) of the unstripped control; a "peeled" sample (6) using excess water to remove the wing; and (7) a "dry" stripped sample using the correct amount of added water.

	% sugar	% wing off	% patent flour	% ash
5. Control—Bran	5.54	none	51.6	0.430
Shorts	6.82			
6. Peeled—Bran	5.72	3.0	69.2	0.493
Shorts	7.72			
7. Stripped—Bran	6.08	3.5	74.0	0.460
Shorts	7.92			

as 50 tons have demonstrated this fact conclusively. Also, as much as possible of the wing should be removed from the mass being stripped as it is loosened in the mill (3). If not, the remainder makes a cushion between the berry surfaces, preventing compression and compaction of the sugars into the testa coat. (This lack of compaction lowers the recovery of flour and gives higher ash (4).)

Retention of Sugar

Thus, after many years of work, our analyses show that the retention of sugar, instead of being a detriment, is necessary for the best flour results. Certainly the elimination of even a small part of the endocarp has a decided effect on results from stripped wheat, and it seems probable that it (the sugar) would be just as important in standard milling and tempering. If it is found that natural sugar is a controlling factor in standard milling, it might be the difference between a good and poor wheat. Aside from the obvious benefits of stripping, such as cleanliness, the lowering of insecticide content, etc., the milling of wheat with an additional 70 lb. of useless tare, per ton (the 3½% wing), does not seem logical, as the wing is as useless as the husks, raises the ash content and provides a bitter taste. By its elimination, more products of greater excellence and at a much reduced cost are possible. «

3. In elaboration of the stripping process: In standard tempering, the water and heat change the physical characteristics of the sugars in preparing the grain directly for the rolls. However, the presence of the beeswing acts as a cushion in the rolls and compaction is limited. By stripping off this wing first, the moist grain is warmed slightly by friction during the stripping and this heat further softens the sugar and puts it into condition to be compressed into the lower bran layers where it hardens upon standing. Also during the stripping the bran is toughened by the controlled pressure rubbing of grain upon grain surface. The grain then goes to the rolls in the same manner as standard milling, where it is compacted again, but without the cushioning wing.

4. For comparative assays see article "Compaction Tempering," THE Northwestern MILLER, April 14, 1959, page 10a.

International Offering Scholarship Awards

International Milling Co. again is offering up to a total of $5,000 in college scholarships to eligible sons and daughters of its employees. Since start of the scholarship plan in 1955, International has helped 55 families with the expense of college education under the plan.

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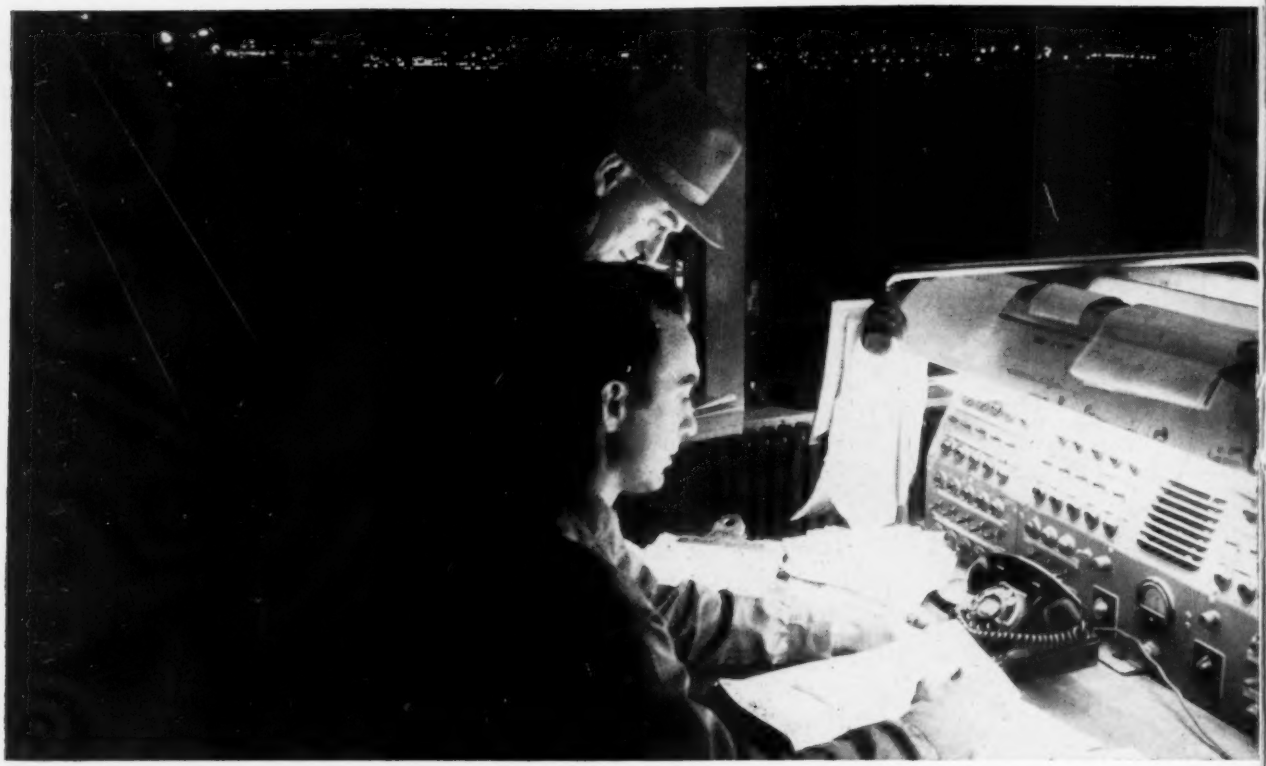

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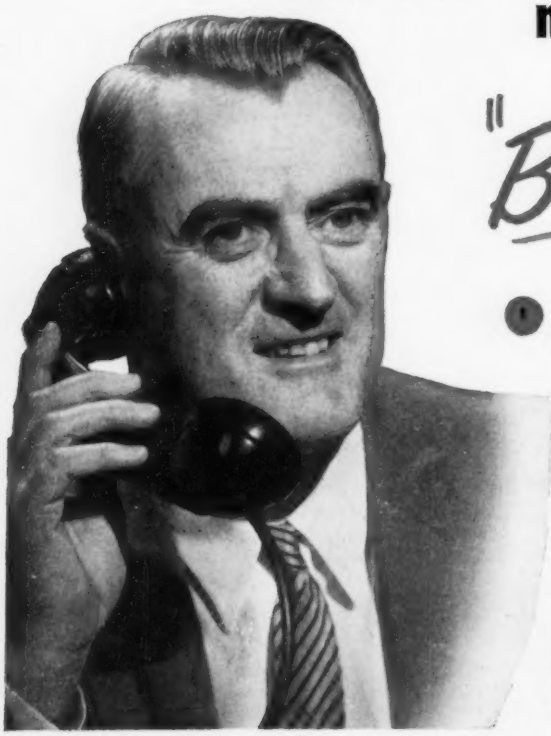

"Thinking backward pays off when it comes to traffic," says Stan Hilliard. "The baker likes a traffic man who thinks in terms of *arrival times*, not pull-outs."

As Dean of Commander Larabee's southwest traffic staff, Stan's policy is to think of the baker's problems first. Twenty-eight years of experience have taught him where to look to unravel a potential traffic snarl when a customer needs a rush car of Commander Larabee flour.

"Bakers don't care when an order leaves," says Stan, "just so it's there when they want to use it."

Stan sells service by producing it . . . by being as much at home in the switch tower as in the office . . . by knowing the runs . . . the routes and sometimes even the crews who work the trains and yards.

"Day and night and weather be hanged," he says, "a Commander Larabee traffic man rides herd on every car. By letter, phone, TWX, and Bellfast teletypewriter, we keep in touch with each train as it rolls along. It's just one of the many ways we tie tight the vital knot between Commander Larabee millers and our bakery customers."

2 "New wrinkles in transportation like these ADMX cars mean money saved and better service. We're quick to move in and evaluate every innovation offered, for better equipment means not only dollars saved, but safer, faster deliveries. Commander Larabee rates as an authority, too," says Stan. "Today may find us making a flying trip to testify before the ICC in support of a rate reduction. Next week may see us presenting a case for special operating authority or transit privileges to serve another Commander customer better."

3 "With nearly a quarter of a million cars a year to keep track of, we rely heavily on staff reports for up-to-the-minute routings, tracing and expediting. It's a big . . . well chosen and well trained team . . . with the knowledge and dedication it takes to earn a baker's trust."

4 "Junior League baseball means a lot to me and two thousand Kansas City youngsters," says Stan as a winning team manager. "On the job and off, teamwork makes champions. In traffic we work 'in close' with the grain buyers, control lab, production and sales folk to keep Commander-serviced bakers more than just satisfied. This is the kind of teamwork that makes Commander Larabee *Better to Buy from.*"

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A Milling Technology Feature

The Potent Force of Radiant Energy

Its Use to Destroy and Control Pests in Stored Grain and Milled Cereal Products Remains Highly Experimental; but Recent Progress Merits Review

By Richard T. Cotton

LET'S take the area of supersonic sound waves as a starting point. The human ear registers sounds from about 16 to 18,000 vibrations a second, leaving a vast range of supersonic — or ultrasonic waves — which it cannot register. It is this area of higher range sound which has the power to kill insects.

Dr. R. T. Cotton

Sound, being a mechanical force, not electromagnetic in nature, but produced by rapid vibration in a medium such as air or water, travels as waves which have the dimensions of frequency, velocity and intensity. It has long attracted the attention of scientists.

It appears that the first person to notice the effects of high intensity ultrasonic waves on animal life was Langevin, a French scientist. In 1917, while investigating use of ultrasonic beams to locate submarines, he noted that fish and other marine life in the path of the powerful sound beam were injured by it.

Numerous scientists have observed that the intense heat generated by high frequency sound waves of great intensity is quite destructive to living things such as insects and microorganisms. Fring, in 1948, reported that mealworms exposed to sound beams from a siren-type generator at 20,000 cycles a second were killed in 30 seconds when not protected by meal or flour.

Yeomans, in 1952, reviewing experimental work on the effect of sound waves on insects, concluded that their use for most insect control purposes is impractical because of the inefficiency of low frequency waves and the difficulty of transmitting high frequency waves through the air. The greatest damage to insects is caused by sound waves having a frequency that produces maximum absorption in the insect but a minimum in the surrounding materials.

The amount of absorption has been found to increase with the square of the frequency of the sound wave, and with viscosity and heat conduction of the material. The hard shell of some insects has high reflecting qualities which are difficult to overcome. When sound energy is intense enough to shatter cells of the insect, the maximum bursting action perhaps is obtained by wave lengths shorter than the cell, but long enough to produce natural resonance. Such would cause maximum pressure on different parts of the cell at the same time.

Gas bubbles may form which burst with tremendous pressure and disrupt the organism. Several types of sound generators are available, including the siren type referred to by Fring.

Electromagnetic Energy

V. H. Baker and his associates at Michigan State Agricultural Experiment Station, in considering the effects of electromagnetic energy on plants and animals, conclude that there is a definite relationship between radiant energy wave length and the degree and nature of tissue damage when electromagnetic radiation penetrates biological material.

Radiant energy causes a wide range of effects on tissue. These physical and chemical effects are both primary and secondary. One obvious effect of electromagnetic radiation on biological tissue with wave lengths longer than 2,880 angstrom units is heating. This includes the radio, radar, infrared and part of the visible spectrum. The effects of electromagnetic radiation on tissue with wave lengths shorter than 2,880 angstrom units causes ionization in atoms, which produces chemical effects.

Actually, there is no clearcut dividing line between heating effect and chemical effect of radiation on tissue. However, energy in the far-ultraviolet spectrum beginning at about 2,880 A., produces some chemical effects in tissue. As wave lengths of the energy become shorter and shorter for X-rays and gamma rays, chemical effects become more pronounced and

The search for a death ray to kill insects no longer is the exclusive province of science fiction writers. Its potentialities have long intrigued research people, inspiring them to experimental work with many forms of radiant energy, all with the hope of finding, controlling and profitably utilizing such a ray. Radiant energy, of which Dr. Cotton examines the various forms in the accompanying article, includes sound waves, electrical energy of various wave lengths such as radio, infrared, visible and ultra-violet light, X-rays, gamma rays, and energy from various atomic particles such as neutrons, alpha and electrons, all useable in many ways.

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Using Radiant Energy (continued)

heating effects are negligible. Let us consider the effect of various forms of electromagnetic energy on insect life as reported by scientists.

Radio Waves

The effect of radio-frequency energy on animal life has been the subject of much study since d'Arsonval, in 1893, observed marked temperature rises in laboratory animals when exposed to high-frequency electrostatic fields. Radio-frequency energy has been employed in the medical field many years for therapeutic heating of body tissues in the practice of diathermy.

One of the earliest reports on use of radio waves to kill insects was published by Headlee and Burdette in 1929, followed by a series of reports by Headlee and his associates. They found that certain insects died when exposed to a high-frequency field. The lethal effect was attributed solely to temperature.

The effect of high-frequency waves on various stored product insect pests was also described by Hadjinicolaou in 1931. As early as 1927 J. H. Davis, chief engineer of electric traction of the B. & O. Railroad, became interested in sterilization of the millions of bushels of wheat stored in the railroad elevators. He experimented with a 20-kw. Westinghouse standing-wave oscillator operating at a fixed frequency of 42 million cycles a second. While effective, the cost of building and maintaining apparatus with sufficient capacity for practical purposes was prohibitive.

Effects of Exposure

The effects of exposing insects to high frequency fields have been studied by many investigators, and numerous machines have been designed for treating grain and milled cereals. A large cooperative feed mill in Buffalo has successfully operated two dielectric heat ovens for many years to sterilize feed bags. These ovens can treat 3,400 feed bags an hour at a cost of ½¢ a bag. Bales of 250 bags, moving through these ovens on conveyors, are heated to 220-240° F. This treatment destroys all non-sporeforming germs.

Work of the U.S. Department of Agriculture and cooperating state workers is reviewed in a progress report which appeared in Agricultural Research during 1953. The statement is made that tests on wheat and rice show high frequency electromagnetic fields of force, employed in the process known as dielectric heating, to have practical possibilities for controlling rice weevils in grain. The main advantage of dielectric heating is the ability to generate high heat uniformly through a large mass of material in a short time, often in only a few seconds. Insects in infested grain are killed by exposing the grain between two parallel metal plates which form part of an electronic power oscillator. This is similar to equipment used for radio and television transmitters. The power oscillator sets up a field of several thousand volts between the two plates. The field of force generated by the oscillator surges back and forth between the electrodes millions of times a second. The molecules of the material under treatment are stressed first one way and then the other at great rapidity by force of the alternating field.

This stress quickly heats the material. Temperatures reached depend on voltage applied to the electrodes, distance between them, and length of time the electromagnetic force is applied. Temperature of the wheat can be raised 50° or 60° F. in a few seconds. The process by which temperature of the grain and the insects is raised is known as dielectric heating. It is different from any other method of heating commonly used. It is much faster, and the heat is generated within the grain and the insects as they absorb energy from the field.

Reports of Tests

Most of the tests reported were made using an oscillator frequency of 40 megacycles per second. Adult rice weevils in 12% moisture wheat exposed in plastic boxes were killed in 1 sec. The treatment heated the wheat to a temperature of 128° F. Higher temperatures were required to kill immature stages of the weevil within the wheat kernels. Germination and milling and baking tests showed no appreciable damage to grain until temperatures exceeded 160° F. It is estimated that cost of treatment of grain on a conveyor belt might go as high as 5¢ bu.

Advances in this field of research may result in development of an economical method of treating grain and milled cereal products. Considerable interest has developed in the use of dielectric heating for drying high moisture grain.

Infrared Energy

Infrared energy is associated with heat, because it is radiated by hot bodies, and the absorption of infrared radiation results in heating the absorbing material. Its application against insect infestation is at present restricted to the use of radiation from lamps.

In 1943, Tillson published the description of a method of treating grain with infrared energy. Grain travelling over a steel belt was exposed to heat from infrared light bulbs arranged in banks above and below the belt. An R-40 reflector drying lamp was used to supply energy. One unit was capable of treating 270 bu. wheat an hour at a cost of about ½¢ bu.

In the rice industry, infrared lamps have been used to destroy insect infestation in screenings. The screenings are run over a metal trough which is agitated by an eccentric or vibrator. A series of lamps suspended above the metal trough supplies the radiation necessary to kill the insects.

X-Rays, Gamma Rays

"Cold sterilization," the treatment of materials with ionizing radiations rather than heat to sterilize, pasteurize, or prevent spoilage of food, can be accomplished with electrons from specially designed, high voltage generators or from the gamma radiation, similar to "hard" X-rays given off by atomic fission by-products.

Observation on the effect of ionizing radiations against insects dates back almost to discovery of the X-ray in 1895. However, first attempts at disinfestation by means of ionizing radiations were made in 1912 by Morgan and Runner, who attempted to kill the cigarette beetle in boxes of cigars.

It is a matter of observation that the biological and chemical effects of X-rays, gamma rays and accelerated electrons on insects are essentially the same. The temperature of treated material rises only a fraction of a degree as the result of treatment.

Dosages are expressed in several ways: (r), the roentgen unit is defined in terms of the ion pairs produced in air by X-rays or gamma rays. Rep (the roentgen equivalent physical) was established to provide a unit of energy absorption for media other than air and was originally defined as a quantity of ionizing radiation which degrades to 83 ergs of heat energy per gram of biological tissue. The definition was later changed to 93 ergs per gram of soft tissue.

To avoid confusion resulting from use of the rep, another unit, the rad, was adopted internationally for bio-

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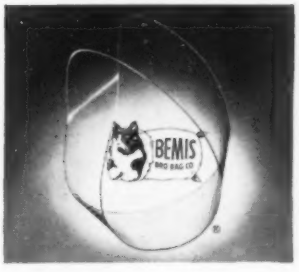

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Experiments with Energy (continued)

logical research as the quantity of ionizing radiation which results from absorption of 100 ergs per gram of irradiated material at the point of interest. For practical purposes there is very little difference between the three units.

Accelerated Electrons

Considerable research has been conducted with the treatment of grain and other foodstuffs with accelerated electrons from high-voltage accelerators, and there has been considerable development of high-voltage electronic acceleration equipment. No induced radioactivity is produced in the treated product at voltages below 21 million volts.

Typical of this method are experiments with the Van de Graaff accelerator described in a series of articles by Baker and his associates at the Michigan Agriculture Experiment Station. A corona discharge causes electrons to be deposited on a fast-moving belt. These electrons are delivered to the spherical-shaped, high voltage terminal. In the machine used, when the potential builds up to 2 million volts, electrons from a heated filament in the evacuated acceleration tube are accelerated down through the acceleration tube through a thin aluminum window and into the product.

As the electrons travel down through the acceleration tube they approach the speed of light. The Van de Graaff generator can be thought of literally as an electron gun shooting electron bullets into the product being irradiated. Penetration into matter is less than X-rays, and maximum penetration of 2 million volt electrons into wheat and flour is about one inch when irradiated from top and bottom.

An electron dose of about 10,000 rep will sterilize flour beetle and granary weevil eggs, and prevent adult insects from reproducing. A somewhat higher dose is required to sterilize moths. For practical purposes some writers suggest use of a dose of 25,000 rep to assure both egg and adult sterility. A dosage of 500,000 rep is necessary to give an immediate kill of adult flour beetles, and 250,000 rep for granary weevil adults.

A dosage of 10,000 rep is considered detrimental to seed wheat. It will affect the growth of wheat plants from treated seed. A lethal dose for wheat seed is between 30,000 and 40,000 rep. Little effect on baking quality is reported from wheat treated at dosages up to 500,000 rep. However, off flavors are noticeable in bread from wheat treated with dosages above 50,000 rep. The cost of treatment is not excessive, but installation and maintenance costs are high.

X-Rays for Processing

The production of X-rays is very inefficient. For this reason X-radiation has not been seriously considered for radiation processing applications. An interesting use of X-rays in connection with insect infestation problems is for the detection of internal insect infestation in grain. By this method X-ray machines are used to take radiographs of 50 or 100-gram samples of grain. These radiographs reveal the presence of insect forms within the kernel. The skilled laboratory worker can then rapidly assess the amount of internal insect infestation. The X-ray method is the most accurate and rapid known for this purpose.

Gamma Radiation

Irradiation of grain and foodstuffs with gamma rays from nuclear fission products, although effective for destroying insect life, is not otherwise practical at present. One aspect of the problem that could limit its use would be the cost of transporting products to the treating facilities. To overcome this difficulty designs have been made for portable irradiation facilities to treat flour, meal or grain. However, years of study may be required to determine the wholesomeness and safety of irradiated food products for human consumption.

Under the federal food additives law adopted in 1958, use of food additives known to be in any way carcinogenic is prohibited. Induced or migration of radioactivity in foods is considered to be an "additive" which might possibly be carcinogenic.

Use of radiation has resulted in elimination of the screw worm menace in the southeastern U.S. The principle, proposed by Knipling, involves sterilization of male screw worm flies with gamma rays from Cobalt-60 and their release in large numbers to mate with normal female flies which mate but once. Thus, nonfertile eggs are produced and should result in eventual elimination of the screw worm population.

The successful application of radiant energy to control of insect pests in stored grain and milled cereal products will no doubt come through

continued research and increased interest in the development of more efficient radiant energy equipment. «

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MILLING FOR PROFIT (No. 2)

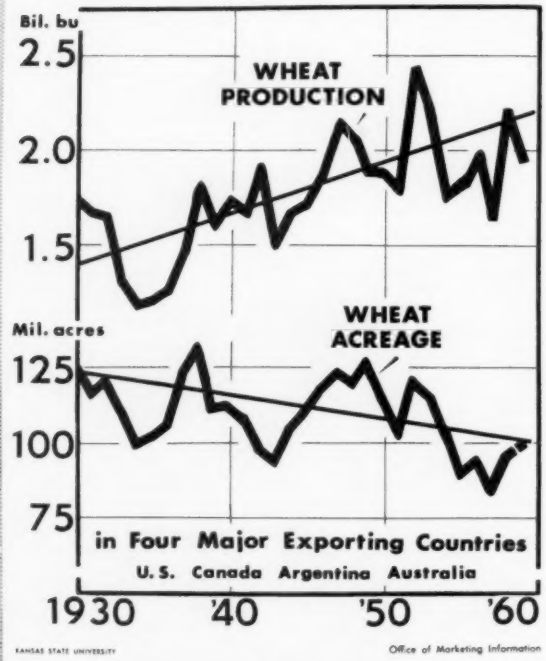
World Wide Wheat Problems

By DR. LEONARD W. SCHRUBEN
Agricultural Economist, Kansas State University

Building export markets isn't easy! Wheat surpluses are world wide. Figure 1 shows that production in the four major exporting countries has increased since 1930. Wheat acreage in these same countries has been reduced.

The other countries need to find markets, too. How we manage our wheat industry has an impact on our total international situation.

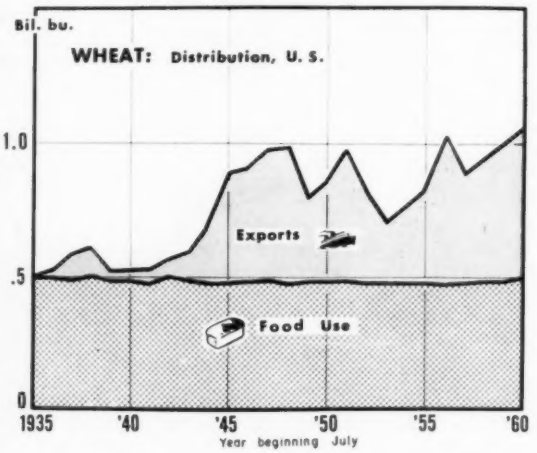
Figure 1



Experience has demonstrated that price cutting by the U.S. is met immediately by other exporters. The U.S. is the only major trading nation seriously attempting to maintain a private grain trade, although there seems to be some interest in this direction by one or two other trading nations which have tried controls. The challenge is to preserve this system in a world of state trading monopolies.

Wheat exports have been expanding since the mid-1930's. This can be seen by looking at Figure 2, which shows a comparison of the home market for food use and the export market. Note how much more wheat is being shipped now compared to the pre-war period.

Figure 2



Almost every avenue has been tried in recent years to enlarge exports. The government has followed a vigorous policy of expanding export sales and developing new markets. At the same time, established markets of other exporting nations have not been greatly disrupted.

Wheat growers also have supported market development work. In seven states, including Kansas, Nebraska and Colorado, wheat growers pay a small fraction of a cent per bushel for expansion of markets. Increased sales have accompanied this effort. «

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MEN GOING PLACES

James L. Rankin, a former vice president and director of the Pillsbury Co., has been advanced to president and chief executive officer of Foremost Dairies, Inc., San Francisco. Mr. Rankin recently joined Foremost as executive vice president and director. **Paul E. Reinhold** continues as chairman of the board and **Dr. Grover D. Turnblow**, president of Foremost since 1953, becomes chairman of the executive committee. Both will remain active in the company. Election of Mr. Rankin to his new position was cited by Mr. Reinhold and Dr. Turnblow as a move to continue the strengthening of the over-all management of Foremost by increasing the responsibilities of young, vigorous personnel.

James L. Rankin

●

Douglas Chemical Co. has appointed **Warren O. Edmonds** as manager of its new custom fumigation division. Prior to accepting the new post with Douglas, Mr. Edmonds spent four years with American Cyanamid Co. as an agriculturalist engaged in field research and development of agricultural chemicals and fumigants. He holds a bachelor's degree from the University of Kansas and served five years as a cereal technologist with Doty Laboratories, Inc., North Kansas City, Mo. He currently holds the position of chairman of the pesticide residue committee of the American Association of Cereal Chemists. Working with Mr. Edmonds in the new division as a fumigation specialist is **James W. DeLong**, formerly with Ferguson Fumigants, Inc., as sales representative and technical advisor. Mr. DeLong studied at Cornell College and the University of Missouri.

W. O. Edmonds

J. W. DeLong

●

It's a move up to regional sales supervisor for **Albert D. Schlack**, formerly sales manager of Contin-

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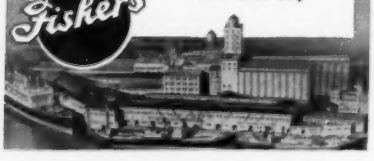


ental Baking Co.'s Hall-Omar bakery in Detroit, reports **R. Newton Laughlin**, the firm's president. **F. L. McKinnon** is regional manager for Hall-Omar, with headquarters in Cleveland.

●

Reorganization of Ross Machine & Mill Supply Co., Oklahoma City, Okla., brings **Henry H. Stark**, former sales manager, to the post of executive vice president and general manager. **Mrs. Virginia I. Montgomery** becomes president; **Mrs. Lucille Ross** and **Charles W. Moyer, Jr.**, vice presidents, and **K. D. Elswick** secretary - treasurer. Mr. Stark was a close associate for many years of the firm's late president, **Paul J. Montgomery**, and of its founder, **C. R. Ross**, who died in 1960. Mr. Stark is originally from Wellington, Kansas, a graduate of Kansas State University's school of milling, and has been associated with several flour mills. He was with Allis-Chalmers Manufacturing Co. as application engineer for flour milling machinery, came to Oklahoma City in 1949 as Allis-Chalmers' Southwest regional milling specialist, and joined Ross in 1954 as sales manager.

Henry H. Stark

●

Promotion of **Robert Engesether** to advertising manager of Hubbard Milling Co., Mankato, Minn., fills the opening in that position created when **Vernard E. Lundin** was elevated to a new post as director of public and employee relations. Announcement of Mr. Engesether's advancement was made by **Quentin J. Marsh**, vice president and manager of Hubbard's feed department. Mr. Engesether joined the company in 1956 as assistant advertising manager. He was graduated from the University of Wisconsin with a B.S. degree and the distinction of being the outstanding graduating senior in advertising.

Robert Engesether

●

Richardson Scale Co. has elected **Walter M. Young** as a vice president. He continues to direct the company's marketing activities and has been with Richardson since 1948, when he started in the engineering department. During the intervening years Mr. Young has held positions in the process control department, mechanical development section, service department and electrical development. In 1953 he was named chief electrical engineer and three years later became director of sales. A graduate of Newark College of Engineering, Mr. Young received his degree in mechanical engineering in 1948 and has pursued graduate studies in electrical engineering there.

Walter M. Young

●

One of North Dakota Mill & Elevator's veterans, **William A. Brezden**, now bears the title sales manager, durum division, reports **P. R. Fossen**, general manager. Mr. Brezden has been production manager of the flour milling division for nine years. He succeeds **E. J. Thomas** as durum division sales manager, and will headquarter at Grand Forks, N.D. The new sales manager joined North Dakota Mill & Elevator in 1941 following graduation from the University of North Dakota with a degree in chemistry. He served 11 years as a chemist for the company and helped supervise

W. A. Brezden

Superior Elevator Cups
DP - OK - CC - V
For Better Results—Longer Life
More Capacity

"Elevator Cups Is Our Business, Not a Sideline"

K. I. WILLIS CORPORATION MOLINE ILLINOIS
Telephone: Moline, 764-6783

installation of new durum milling equipment while production manager.

●

James R. Scoggin, well known for his representation of the Minneapolis market in a number of key cases before the Interstate Commerce Commission, has been named general traffic manager of F. H. Peavey & Co. He has been director of traffic for the Minneapolis Grain Exchange the past three years and prior to that was assistant general solicitor for the Milwaukee Road in Chicago. An attorney, Mr. Scoggin has been admitted to the bar in Minnesota and Illinois. He is registered as an ICC practitioner and is active in the milling and grain division of the Minneapolis Traffic Club. **Totton P. Heffelfinger**, president of F. H. Peavey, announced Mr. Scoggin's appointment.

James R. Scoggin

●

Burton B. Thompson, a man with considerable background in public relations work and newspaper reporting, has joined the staff of the American Bakers Assn. as assistant director of public relations. A graduate of the University of Wyoming, he was a reporter in Laramie and Cheyenne, Wyo., served with the Associated Press in Cheyenne and Denver from 1942 until he joined the Petroleum Institute at Denver in 1953. He went to Chicago for the institute in 1955 and joined Borg-Warner Corp.'s public relations department in 1958, where he remained until his present position with ABA.

●

The retirement of **Joseph A. Wesson** as head of the U.S. Department of Agriculture's district grain inspection office at Toledo has been reported. His successor will be **English H. Floyd**. Mr. Wesson, whose entire career with the federal inspection service was spent at the Toledo office, began in 1929 as a junior inspector. He headed the office from 1953 and has directed the work of licensed inspectors at a number of points served by the Toledo office. Mr. Floyd assumed charge of the Toledo office following a previous assignment as head of the Chicago district office. He entered service in 1929 at Buffalo, and later that year was transferred to Chicago. «

GRAIN SERVICE
Everywhere

OFFICES

New York, Chicago, St. Louis, Kansas City, Omaha, Minneapolis, Duluth, Hutchinson, Milwaukee, Buffalo, Boston, Columbus, Norfolk, Nashville, Memphis, Enid, New Orleans, Galveston, Houston, Ft. Worth, Portland, Phoenix, San Francisco, Los Angeles, Vancouver, B.C., Winnipeg, Man.

TERMINAL ELEVATORS

Chicago, St. Louis, Kansas City, Omaha, Minneapolis, Buffalo, Boston, Columbus, Norfolk, Nashville, Memphis, Enid, New Orleans, Galveston, Houston, Ft. Worth, Portland, Milwaukee

CONTINENTAL GRAIN COMPANY

MILLING WHEATS FROM EVERY PRODUCING AREA

ADVERTISEMENT

THE QUAKER OATS COMPANY OF CANADA LIMITED

A. RUTTER | K. V. GADD | G. G. HUNTLEY | C. R. STACEY

Mr. James G. Wharry, President of the Quaker Oats Company of Canada Limited, announces the following appointments: Mr. Andrew Rutter, Marketing Director of the Company's Canadian operation; Mr. Kenneth V. Gadd, Director of Grocery Product Sales; Mr. Glenn G. Huntley, M.B.A., Advertising and Promotions Manager; and Mr. C. Randall Stacey, Manager—Flour, Industrial, Institutional and Bulk Products.

Mr. Wharry pointed out that these changes, and others still to be announced, are part of an overall reorganization programme aimed at keeping the Company abreast of current trends and expanding business.

Each of the new appointees is Canadian, and each has had extensive experience in the field of grocery product advertising and marketing. All live and work in Peterborough, Ontario, where the Company's head office is located.

WOLCOTT & LINCOLN, Inc.
GRAIN MERCHANTS
Operating:
Chicago Great Western Elevator
Kansas City
Wolcott & Lincoln Elevator
Wellington, Kansas
Main Office: KANSAS CITY, MO.
Board of Trade Building

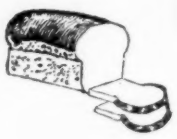
George Urban Milling Co.
More Than 100 Years of Milling
BUFFALO, NEW YORK

ROLL GRINDING
and CORRUGATING
Also NEW ROLLS *for Sale*
TWIN CITY MACHINE CO.
Minneapolis, Minn.

BUFFALO • PYRAMID
Quality Flours Since 1879
The
WILLIS NORTON
Company
WICHITA • KANSAS

FACTS
The **ABILENE**
FLOUR MILLS COMPANY
ABILENE · KANSAS
We can serve you efficiently with either bulk or sacked shipments
CAPACITY-4,000 CWTS.
GRAIN STORAGE
4,700,000 BUS.

No. 8



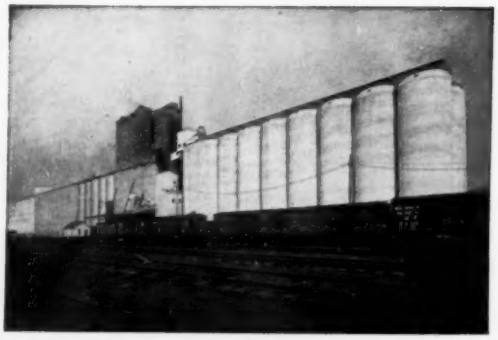
BREAD HONOR ROLL . . .

THE MILLER, in association with Maurice C. Dreicer, the internationally famous gourmet, presents this award for supreme excellence in the production and serving of a flour product to

The Shelburne Hotel, Atlantic City

The award is given for the hotel's cinnamon bun, a rich, flavorful diner's delight either with breakfast or as a snack between meals. Freshness is a "must" for the hotel's cinnamon bun delicacies, and the patron savors them warm from the oven. The Shelburne, which offers its clientele the most carefully prepared, deluxe table d'hote in the city, at the same time gives equal care and attention to the cinnamon buns. Generous quantities of sugar and raisins are used to emphasize the tasty product. Because the buns are served fresh and warm, the sugar retains its flavor, doesn't become brittle, and is a delicious, integral part of a product which provides an excellent taste treat with the customer's meal or beverage.

STRATTON-THEIS GRAIN CO.



STORAGE CAPACITY—3,000,000 BUS.

Operating
UNION TERMINAL ELEVATOR
ST. JOSEPH, MO.

Specializing in milling wheats and all grains with definite rate and other advantages of St. Joseph location.

MAIN OFFICE:
Corby Bldg.
St. Joseph, Mo.

CHRISTOPHER HARRIS
Treasurer and Manager

OFFICERS:
Frank A. Theis, President
Harry M. Stratton, Vice Pres.
John F. Stratton, Vice Pres.
F. J. FitzPatrick, Vice Pres.
W. C. Theis, Secretary

LOOKING OVER the model of a new flour mill to be built on the island of Luzon in the Philippines for Gonzalo Puyat & Sons, Inc., is Sen. Gil G. Puyat, Jr., at the left. Sen. Puyat is pictured with Dr. Rene Buhler, co-owner of Buhler Bros., the firm which designed and engineered the facilities, during a recent visit to the Buhler headquarters in Uzwil, Switzerland. Capacity of the mill will be 4,000 cwt. of flour 24 hours working. Other installations will include pneumatic ship unloading plant for wheat, a grain elevator, cleaning house, flour storage and a laboratory.

Varied Program Given For AOM District 12

Intermountain District 12, Association of Operative Millers, covered subjects ranging from the history of flour mills on through moisture control, fumigation, bin flow and pneumatic conveying at its March meeting held at the Tropical Inn, Brigham City, Utah.

Under the chairmanship of John Singer, Wark Milling Co., Cortez, Colo., the district worked in an information-packed program. Speakers included C. E. Robinson, honorary member and international AOM president in 1928, who gave a history of flour mills in District 12; Howard Ohl, Denver, who spoke on moisture control in bulk flour loading and A. A. Hunt, Columbia Pest Control, Denver, on the subject of fumigation. Lionel Halverson, the Buhler Corp., showed a film, "Problems of Bin Flow."

Following a break for lunch, William S. Johnson, Pacific Grove, Cal., spoke on "Extremultus Transmission Belting"; Thomas Clark, Minneapolis-Honeywell Regulator Co., on "Instrumentation by Honeywell," after which there was a round table discussion on the problems of millers.

Alan Croft, Simon-Carter Co., Minneapolis, spoke on "Pneumatic Conveying."

Other subjects included a talk on the Minuteman missile and a welcome from Rulon Eskelson, the mayor of Brigham City.

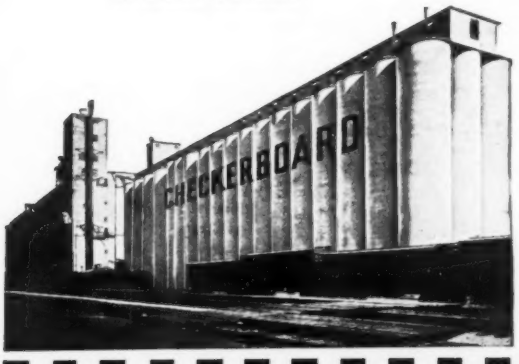
The meeting featured a cocktail party through courtesy of the allied tradesmen, and a dinner party for district members and their wives. «

The Montgomery Company
R. H. MONTGOMERY
FLOUR BROKERS
BALTIMORE 1-3362
21 W. 10TH ST. KANSAS CITY, MO.

Lyon & Greenleaf Co.,
Incorporated
Millers of Quality Soft Wheat Flours
Since 1866
LIGONIER, IND.

ELEVATOR CAPACITY
4,000,000 BUSHELS

CHECKERBOARD – *The Mark of Top Quality – Top Service*



MILLING WHEAT
SELECTED HARD WINTERS
FROM CHOICE TERRITORIES

CHECKERBOARD GRAIN CO.
BOARD OF TRADE BLDG. • KANSAS CITY, MO. • PHONE HA 1-1114
ST. LOUIS • CHICAGO • MINNEAPOLIS

WHERE THEY ARE MEETING

April

April 4—Allied Trades of the Baking Industry Div. 4, annual assembly. Abraham Lincoln Hotel, Reading, Pennsylvania; sec., Vernon N. Bush, 330 Bern St., Reading, Pa.

April 7-8—Districts 1 and 2, Association of Operative Millers, joint meeting; Manhattan, Kansas; contact Prof. E. P. Farrell, Kansas State University, Manhattan, Kansas.

April 9-12—Oklahoma-Arkansas Bakers, annual convention; Western Hills Lodge, Wagoner, Oklahoma; sec., Jno. C. Summers, Oklahoma State Tech., Okmulgee, Oklahoma.

April 9-13—American Association of Cereal Chemists, annual convention; Baker Hotel, Dallas, Texas; sec., Ray Tarleton, 1955 University Ave., St. Paul 4, Minn.

April 10-12—Pacific Northwest Bakers Conference; Multnomah Hotel, Portland, Ore.; sec.-mgr., Roger Williams, P.O. Box 486, Salem, Ore.

April 13-15—Southern Bakers Assn., 47th annual convention; Palm Beach Biltmore Hotel, Palm Beach, Fla.; sec., Benson L. Skelton, Henry Grady Bldg., 26 Cain St. N.W., Atlanta 3, Ga.

April 14-15—District 4, Association of Operative Millers; Dyckman Hotel, Minneapolis; sec., W. R. Carter, the R. J. S. Carter Co., 1219 Flour Exchange Bldg., Minneapolis 15, Minn.

April 14-15—District 5, Association of Operative Millers; Orlando Hotel, Decatur, Ill.; acting-sec., R. H. Artz, Wallace & Tiernan, Inc., 720 So. Amos, Springfield, Ill.

April 16-18—Texas Bakers Assn., annual convention; Granada Hotel and Inn, San Antonio, Texas; sec., Guy J. Lichlyter, 1121 National Bldg., Dallas 1, Texas.

April 16-19—Associated Retail Bakers of America, annual convention; Hotel Sherman, Chicago, Ill.; sec., Miss Trudy Schurr, 731-35 W. Sheridan Rd., Chicago.

April 22—District 8, Association of Operative Millers, Lenox Hotel, Buffalo; sec., Roy F. Kehr, Kressilk Products, Inc., Depew, N.Y.

April 22-23 — South Dakota Bakers Assn., annual convention; Sioux Falls, S.D.; sec., Paul Scholder, 1317 Leavenworth St., Omaha, Neb.

April 23—Indiana Bakers Assn., annual convention; Van Orman Hotel, Ft. Wayne, Ind.; sec., Ferd A. Doll, 1941 E. 30th St., Indianapolis 18, Ind.

April 23-26—Millers National Federation, annual convention; Shoreham Hotel, Washington, D.C.; sec., John Sherlock, MNF, 309 W. Jackson Blvd., Chicago 6.

April 23-28—Grain Elevator & Processing Superintendents, annual convention; Baker Hotel, Hutchinson, Kansas; sec., Dean M. Clark, 1115 Board of Trade Bldg., Chicago 4.

May

May 8-9—Minnesota Bakers Assn., annual convention; Hotel Radisson, Minneapolis, Minn.; sec., James M. Long, 623 14th Ave. S.E., Minneapolis.

May 9—New England Bakers Assn., spring meeting; Sheraton-Plaza Hotel, Boston, Mass.; sec., William E. Bowman, 945 Great Plain Ave., Room 9, Needham 92, Mass.

May 14-15—Virginia Bakers Conference, spring conference; Hotel Roanoke, Roanoke, Va.; executive dir., Harold K. Wilder, 5 South 12th St., Richmond 19, Va.

May 20-21—Iowa Bakers Assn., annual convention; Des Moines Hotel, Des Moines, Iowa; sec., Earl F. Weaver, 6416 Colby Ave., Des Moines 11, Iowa.

May 20-22—Rocky Mountain Bakers Assn., annual convention; Continental Denver Motor Hotel, Denver, Colo.; sec., Fred Linsenmaier, Box 871, Denver 1.

May 22-25—Association of Operative Millers, annual technical conference and trade show, Hotel Pick-Nicollet, Minneapolis, Minn.; sec., Donald S. Eber, 639 Board of Trade Bldg., Kansas City, Mo.

May 26-28—National Association of Flour Distributors, annual convention; Hilton Hotel, Pittsburgh, Pa.; sec., Philip W. Orth, Jr., Ph. Orth Co., 304 E. Florida St., Milwaukee 4, Wis.

June

June 4-6—New York State Association of Manufacturing Retail Bakers, annual convention; Westchester Town House, Yonkers, N.Y.; sec., Frank E. Englert, 135 Primrose Drive, New Hyde Park, N.Y.

June 4-6—The National Council of the Baking Industry, annual conference; Royal York Hotel, Toronto, Ont., Canada; managing director, R. H. Ackert, 4 N. Sherbourne St., Suite 105, Toronto 5, Ont., Canada.

June 10-12—Bakers Association of the Carolinas, annual convention; Ocean Forest Hotel, Myrtle Beach, South Carolina; sec., Mary E. Stanley, P.O. Box 175, Rockingham, S.C.

June 25-27—New Hampshire-Vermont Bakers Assn., annual meeting; Wentworth Hall, Jackson, N.H.; sec., Calvin Gaebel, 214 Harvard St., Boston 34, Mass.

July

July 13-17—Bakery Equipment Manufacturers Assn., annual meeting; Bedford Springs Hotel, Bedford Springs, Pa.; sec., Raymond J. Walter, 511 Fifth Ave., New York 17, N.Y.

July 16-19—West Virginia Bakers Assn., 1961 convention; the Greenbrier Hotel, White Sulphur Springs, W.Va.; sec., Mrs. Edward R. Johnson, 611 Pennsylvania Ave., Charleston 2, W.Va.

CALENDAR FOR 1961-62

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September

Sept. 17-18—Wisconsin Bakers Assn., annual convention; Plankinton House, Milwaukee, Wis.; sec., Fred H. Laufenburg, 6173 Plankinton Bldg., 161 W. Wisconsin Ave., Milwaukee 3.

Sept. 17-19—Southern Bakers Assn., annual production conference; Dinkler Plaza Hotel, Atlanta, Ga.; sec., Benson L. Skelton, Henry Grady Bldg., 26 Cain St., N.W., Atlanta 3, Ga.

October

Oct. 7-12—1961 Baking Industry Exposition; Convention Hall, Atlantic City, N.J.; sec.-treas., Harold Fiedler, 20 N. Wacker Drive, Chicago 6, Ill.

Oct. 14—District 6, Association of Operative Millers; Frankenmuth, Mich.; sec., Oscar Nelson, King Milling Co., Lowell, Mich.

November

Nov. 13-14—Washington Association of Wheat Growers, annual convention; Walla Walla, Washington; sec., Geo. W. Johnson, Ritzville, Wash.

Nov. 13-14—New England Bakers Assn., fall convention; Sheraton-Plaza Hotel, Boston, Mass.; sec., William E. Bowman, 945 Great Plain Ave., Room 9, Needham 92, Mass.

1962

January

Jan. 28-30 — Potomac States Bakers Assn., annual convention; Lord Baltimore Hotel, Baltimore, Md.; sec., Edwin C. Muhly, 1126 Mathieson Bldg., Baltimore 2, Md.

February

Feb. 11-13—Pennsylvania Bakers Assn., annual meeting; Bellevue Stratford Hotel, Philadelphia, Pa.; sec., Theo Staab, 600 No. Third St., Harrisburg, Pa.

VAN DUSEN HARRINGTON
DIVISION
F. H. Peavey & Co.
GRAIN SOYBEANS FLAX
Founded 1852
MINNEAPOLIS DULUTH

HARD AND SOFT WHEAT FLOURS
J. F. IMBS MILLING CO.
ST. LOUIS 10, MISSOURI
MILLING CAPACITY—4,200 CWTS. DAILY

APPRAISAL SINCE 1925 SERVICE COMPANY
605 FOURTH AVENUE SOUTH
MINNEAPOLIS, MINNESOTA
FACTUAL PROPERTY VALUATIONS

A. E. BAXTER ENGINEERING CO.
Designers and Engineers for Mills, Elevators and Feed Mills
1310 GENESEE BUILDING BUFFALO 2, NEW YORK

Dannen Covers the Midlands

Strategically located, Dannen furnishes all types of top-quality milling wheat from points throughout the entire winter wheat area. Over 25 million bushels of storage space in terminal elevators and twenty-six country stations is your assurance of dependable Dannen service.

Experienced wheat buyers, skilled in meeting the most exacting requirements, are anxious to serve you. Call today.

St. Joseph, Mo. ADams 3-6162
Kansas City, Mo. GRand-1-6212
Denver, Colo. ATlas 8-6659

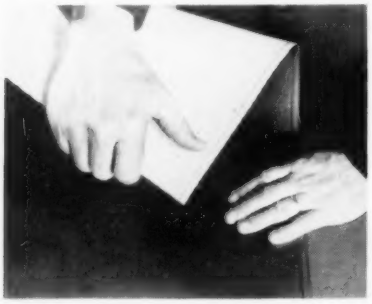
GRAIN & JOBBING DIVISION—DANNEN MILLS, INC.

NEW •IDEAS •PRODUCTS •SERVICES

This reader service department announces the development of new and improved products, new services and new literature offered by manufacturers and suppliers. Claims made in this department are those of the firm concerned. Use the accompanying coupon to obtain the desired information.

Grain Handling Liner

A fabric backed urethane material specially designed for use as a grain handling liner, among other products, has been developed by the industrial division of Armstrong Cork Co. Named Armstrong PO-663, the material is said to provide maximum



abrasion resistance and to reduce costs by protecting chutes and equipment. Reportedly, it also allows use of thinner gauge materials, is said to reduce maintenance costs, and can be easily installed by cementing or bolting. The manufacturer claims the fabric backing provides ease of installation with conventional rubber-resin adhesives.

Circle No. 4786
on Reply Form for Details

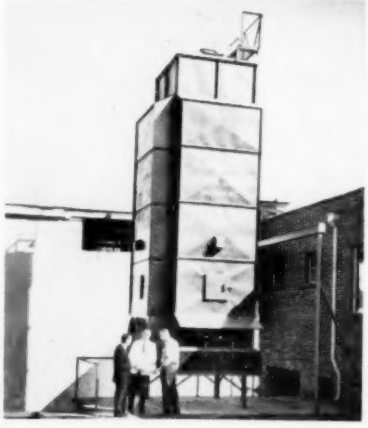
Conveying Systems

Sprout, Waldron & Co., Inc., is offering advance specification sheet, No. 229, giving details of its "Moyno" pump conveying systems for fine, powdery materials without dusting problems. The system, Sprout-Waldron explains, is not a substitute for air conveying systems, but rather a supplemental unit for lowering the costs of a complete storage and in-plant system. Little, if any, air is required for conveying with the system. As a result, fine, dry, powdery material can generally be pumped over reasonable distances into open containers or bins. In rare cases container or bin must be covered, but the area for venting required for dust control is extremely small and the need for filters practically eliminated, the company points out. Helical rotor design of the pump forces material through a stator section where a small amount of air can be bubbled into the stream to fluidize the material so that it flows very much as a liquid would flow.

Circle No. 4787
on Reply Form for Details

Grain Driers

Aeroglide Corp. has announced its 1961 models of the Aeroglide grain bank series driers. With field experience in drying wheat and other grains under all climatic conditions, the firm has made improvements in its equipment which it considers significant enough to give operators control of the drying process greater than ever before. Design changes, it is claimed, have resulted in improved burner design; simplified, more accessible controls, and more "operation control" over the drying process. Elevator designers, owners and operators, Aeroglide states, will be particularly interested in the compactness of new models. Burner and controls are assembled, checked and packaged as a single unit at the factory for mini-



mum installation time. Vapor-type burners use either natural or LP gas, and elongated burner design extends over full width of the drying air duct for even heating and uniform, top quality drying, the firm claims. Illustrated literature will be provided on request.

Circle No. 4788
on Reply Form for Details

Revolving Beacon

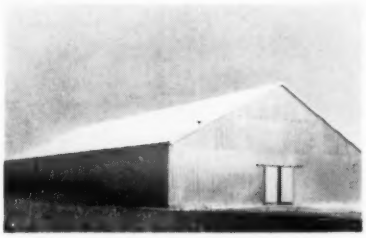
A revolving beacon, designed specifically to harass and frighten away birds nesting in such facilities as granaries, is available from the Trippe Manufacturing Co. Named "Birdlite," the beacon owes its effectiveness to

pairing of bulbs and lens. A vertical filament bulb, made exclusively for Trippe by General Electric Co., in combination with four f2.5 parabolic lenses (two clear and two amber), is said to produce flashes of light with vertical depth. The flashes are bright over a wide angle above and below the horizon.

Circle No. 4789
on Reply Form for Details

Grain Storage Building

A line of pre-engineered metal buildings designed for bulk grain storage has been introduced by the buildings division of Parkersburg Rig and Reel Co. Designated type SF2, the building features a horizontal truss system in the end walls reportedly capable of withstanding extreme grain pressures, eliminating the need for guys or other interior supports. Floor area is completely clear, allowing easy grain removal and enabling use of the building for purposes other than grain storage. According to the manufacturer, building panels are weathertight, sealing out rain and dust, and designed to withstand wind shock and heavy snows. Panels are claimed to offer maximum resistance to fire haz-



ards and require little or no maintenance under even the most extreme demands of service and climate. Roof pitch differs with two models, the SF2G and the SF2H.

Circle No. 4790
on Reply Form for Details

Precision Switches

A 20-page catalog, covering a representative selection of products from its complete line of precision switches, is offered by Micro Switch, a division of Minneapolis-Honeywell Regulator Co. Designated Catalog 104, it has photos and condensed descriptions of over 200 items, including miniature switches, special purpose switches, electronic switch-circuit assemblies, lighted pushbutton switches, toggle switches, limit switches, proximity switches and mercury switches.

Circle No. 4791
on Reply Form for Details

Storage, Conditioning

Dempster Mill Manufacturing Co. is now manufacturing and distributing crop storage and conditioning equipment. The expanded Dempster line includes standard size steel grain bins; "Big D" big capacity steel grain bins; drying floors; Jet-stream drying fans and heat units; grain spreaders; moisture meters; and bulk feed bins. Dempster standard bins are built of the heaviest gauge prime galvanized steel sheets, fully corrugated, and offer many other of the most wanted features, including steep pitch roof, states the manufacturer. They are available in eight sizes from 1,000 to 4,400 bu. The "Big D" bins also are built of heaviest gauge galvanized and corrugated sheets with Z-iron bracing on the larger models. They are equipped with 20 in. x 20 in. crawl door and auger tube in the third ring. They are offered in diameters of 18, 21, 24, 27 and 36 ft. with capacities from 4,200 to 36,400 bu.

Circle No. 4792
on Reply Form for Details

'Scale Error' Bulletin

Causes of scale error and the steps required to eliminate it are outlined in an eight-page booklet issued by the Howe Scale Co. The Howe booklet discusses the most common causes of scale error and the serious cost control problems resulting from it. It points out the step by step procedure required to eliminate dangers of scale error. Also, the special equipment and training needed to carry out a satisfactory scale service program and the costs involved are discussed. Copies of the booklet are available without charge.

Circle No. 4793
on Reply Form for Details

Grain Trailer

A grain trailer with automatic unloading, including both a full length 12 in. belt and an 8 in. elevating auger, is available from Wilson Trailer Co. The two-part system can be used for direct belt unloading from the rear, or for auger delivery in a 360° arc. The auger operates at 400 rpm and will unload the entire 1,200 cu. ft. trailer in a matter of minutes, according to the manufacturer.

Circle No. 4794
on Reply Form for Details

Dust Filter Bulletin

The Day Co. is offering an eight-page bulletin containing detailed information about its improved design "RJ" dust filter. The bulletin describes how the "RJ" with only three moving parts, filters and recovers dust with top efficiency from airstreams lightly or heavily loaded with extremely fine, coarse, abrasive or non-abrasive dusts. Included are details of the simplified method utilized by the "RJ" for maintaining porosity of the filtering media. It points also to savings in operating costs and to versatility of the improved "RJ". Specifications and dimensions of single and multiple unit installations are given for standard fan locations and reverse air pressure blowers. Photos show construction details and typical installations.

Circle No. 4795
on Reply Form for Details

Automatic Bag Printer

Bemis Bro. Bag Co. announces development of its Bemis Bag Top Printer, an automatic printer to assure clear, uniform printing of product specifications or codes above the sewing line of sewn multiwall paper bags.

The "top printer" is mounted on a sewing pedestal and imprints the bag as it is being sewn closed. The unit utilizes a Porelon ink roll which is

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said to eliminate use of fluid inks, solvents, reservoirs, transfer rolls, etc. Bemis reports that the "top printer" is simple to set up and easy to maintain, along with being power-driven. Type, on the rotary print wheel, can be changed quickly, it is stated. If, on certain products, printing is not desired, the complete printer pivots on the pedestal column to swing clear of the packing line. Printing speed is set by a variable speed sheave on the motor, which is synchronized with speed of the conveyor and sewing head. This positive control, together with a shelf-indexing type print

wheel, assures printing in the same location on each bag, claims Bemis. In operation, the attendant simply leads the edge of the bag into the printing guide. From this point the bag is coded and an actuator starts the sewing head to sew the bag. The thread is automatically cut when the bag leaves the sewing head. Engineering specifications and operational data are available on request.

Circle No. 4796
on Reply Form for Details

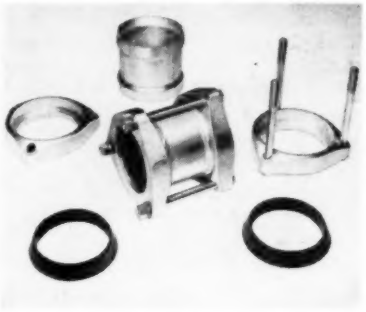
Non-Warping Frames

A special chemical "bath" has been developed by the S. Howes Co., Inc., to treat the wooden screen frames used in its grain cleaning machines. The new process utilizes a special chemical which penetrates deep into the pores of the wood, said to eliminate completely all possibility of warping. In addition, the chemical treatment reportedly makes the screen frames resistant to fungus and insect damage. While the screen shoes on the S. Howes cleaners are made of marine plywood, in itself highly resistant to moisture and warping, the added protection of the new chemical treatment is claimed to insure perfect alignment of the screens under all conditions of temperature and humidity.

Circle No. 4797
on Reply Form for Details

Pneumatic Coupling

The Fluidizer Division of Daffin Corp. announces an improved coupling said to simplify the joining of pneumatic lines. It is claimed to provide a strong, safe seal even under difficult conditions of space and curvature. Special design and construction are said to make the coupling especially applicable for sight-glass sections with maximum protection against stresses that frequently crack or break the glass. Extra large neoprene gaskets, odorless and tasteless, plus special construction, insure positive seal and gripping action even when tubing is appreciably out of round, states the manufacturer. In addition, the coupling will make connections perfectly on the arc of an elbow without requiring straight sections. The coupling is of cast aluminum construction to



prevent rusting and deterioration and is mounted with 3 cadmium plated take-up bolts. Construction is said to be simple and to assure fast, easy assembly or disassembly of lines to reduce maintenance time. Sizes range from 1½ in. to 4 in. diameter.

Circle No. 4798
on Reply Form for Details

Please send me more information. I have circled code numbers of items in which I am interested.

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4791	4792	4793	4794	4795
4796	4797	4798		

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Impact of New Feed Grain Legislation May Resound Throughout Other Markets, With Wheat Men, Millers, Bakers Feeling Its Force

By F. C. Bisson
Chicago Correspondent

ALL the political maneuvering and back fence trading incidental to passage of the Feed Grain Bill make one wonder if some of those involved aren't like the presidential candidate of some years back about whom we recall a story.

F. C. Bisson

This man was wise politically. He was grounded in such economic facts as the danger of spending more than you earn, etc. Unfortunately, his knowledge of the farm problem was zero minus. To him, the word "parity" was a mis-spelling — he thought the word should be "party."

However, that same farm program looked attractive to the politicians. They, and this candidate's closest political advisor, who also was his financial "angel," could see a real need for their party to obtain the lion's share of the farm vote.

So, one day the advisor-angel, an astute man, asked his protege, "Have you decided what we should do about the McNary-Haugen Bill?"

In what may well be the All-American piece of naivete, the candidate replied, "Heavens—haven't we paid that thing yet?"

Much water has gone down the drain since that incident. It seems apparent that there's a better understanding of the farm problem among the non-agrarian population than existed 30 years ago, thanks to the press.

A Sound Old Phrase

The man-on-the-street knows the soundness of the phrase, "A prosperous agriculture is necessary for a prosperous economy." He's also noted the price tag, and the fact that the farm problem actually has been compounded —instead of solved—after 25 years.

Belatedly, he realizes subsidization of a system dependent on peddling farmers' grains to the government for giveaway or bargain counter sale is not only class legislation but that it solves no problems, and even creates more pressing ones.

It is our opinion that the free marketing system, and along with it the milling and baking industries as we have known them, will be decimated as surely as Dr. Frankenstein was by the monster which he created, unless all of the current economic clap-trap is discarded.

The end result could be some individual, possibly a former governor, and his economic advisors, telling the millers what price to pay for their wheat, the level at which to sell flour, what extraction to make it, along with an elaborate formula for arbitrary price differentials between the bran, shorts, middlings and red dog.

Patching and Retreading

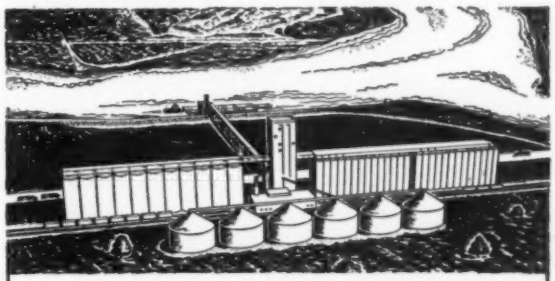
As for the Feed Grain Bill, following wholesale patching and retreading the compromise version was ultimately passed by both houses and rushed to the White House for presidential signature.

While generally resembling the original measure of one month earlier, there were portions without resemblance.

Corn Belt spokesmen in the Upper House, among them Sen. Hickenlooper of Iowa, claim the bill as passed and signed definitely gives Orville L. Freeman, secretary of agriculture, power to lower cash corn and other feed grain market prices by allowing him to sell such grains under the revamped payment-in-kind arrangement incorporated in the law.

According to Sen. Hickenlooper, "This is a bill to control prices and to keep them down. If it doesn't work, there'll be no one to blame but Sec. Freeman."

The club which the administration wanted for the secretary to hold over the heads of recalcitrant growers of corn and other feed grains was "upholstered" by the joint conference committee. But it is our opinion that the Senate was sold a bill of goods when it accepted the con-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Feed Grain Measure (continued)

ference committee changes. It did kill the blanket punitive authority desired by the secretary to force growers into the program by selling defaulted corn stocks literally "with both hands."

But, conceivably, compromise authority incorporated on that point can accomplish exactly the same objective by permitting the government to act as "salesman" for the "in-kind" corn which would become the farmer's property in return for reducing his acreage by 20% or more.

Conferees Impressed

Considering the cleavage between the House and Senate versions of the measure when it was turned over to the joint conference committee, that group might well have turned its deliberations into a battle royal. But apparently conferees were more impressed by the emergency tag put on the measure by the White House in the first place than by inherent implications buried in the complex, pseudo-legal verbiage of it.

The Big Question

In final analysis, the big question is, "To what extent will corn and grain sorghum growers respond to the incentives in the bill?"

If the bait does not appeal to farmers who raise corn as a cash crop, the government might just as well dig a grave for the measure right now alongside that of the 18th Amendment.

Data on "intentions to plant" this year was gathered too early to be influenced by anything which might have been incorporated into the Feed Grain Bill to influence corn acreage figures.

At 82,405,000 acres, intentions were only about half a million below last year's planted acreage, and approximately 2 million over the 10-year average.

However, with all the fanfare the administration planned for the whole scheme, no corn or grain sorghum farmer can claim that he did not know all about it. There were at least three big meetings scheduled in the Corn Belt. So, if the measure strikes a popular chord and there's a wholesale rush to participate, these 82 million acres mentioned as "intentions to plant" will have about as much standing as did some of the predictions calling for the end of the world which were propounded by John Alexander Dowie back around the turn of the century.

Impact on Bread Grains

Although bread grains are not mentioned in the feed grain legislation, we venture to state again, as we did several weeks ago, the measure will be more than just a conversation piece for millers and bakers. There are several reasons for this.

One is the impact the legislation is bound to have on the feed market—the one market which concerns just about everything that goes into commercial mixed feeds, and particularly flour milling's by-products. Every miller knows the importance of his wheat millfeeds.

Then there's certainty that the Feed Grain Bill is to serve as a guinea pig for the "master operation" involving wheat, if nothing else.

Any miller or baker who sees no need to worry about danger from this piece of legislation should read the minority report of the House Agriculture Committee, and he will change his attitude.

Commenting on the proposal for the government to drive growers into the program by selling grain sorghums and corn, thinking members of the Lower House had this to say in part:

"The market price of these grains could be maintained below support level as a means of compelling compliance with acreage allotments. This is a most revolutionary change in historical concept, use and purpose of support programs. It would constitute an unparalleled grant of power to the secretary of agriculture. It would destroy market functions by requiring all complying producers to put their crops through the Commodity Credit Corp. if they are to get government support.

Fallacious Concept

"This is a fallacious concept. The effect would be to make the government the market for all cooperators' grains and to disrupt the livestock, poultry and dairy industries by administratively manipulating the release of

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DOGGONE IT, PETE, THIS HAS GOT TO STOP!
...Just came from the bag-filling department... Not a man wearing a respirator.
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It's sure light and comfortable, but can it do a man-size job?
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government stocks of feed grains on an unpredictable basis."

There's much more along the same lines, but the foregoing is a fair example of the sort of economic mish-mash brewed by the agriculture department and changed only to a minor extent for acceptance by the joint conference committee.

Admittedly, corn is corn and wheat is wheat. But they enjoy one thing in common—both are for food and commerce.

No miller, no baker can afford to sit idly by while the same thing is done to bread grains that is now being done to feed grains, if the free markets are to be kept free. «

AACC Section Briefed On Food Additives

Members of the New York Section, American Association of Cereal Chemists, were brought up to date on the Food Additives Amendment by Franklin M. Depew, president of the Food Law Institute, at their March meeting.

Mr. Depew reminded the section members that technically the amendment did become effective March 7, but that the Food and Drug Administration is not taking immediate steps to enforce it against substances which could be covered by the bill so long as it remained under consideration by Congress.

He also cited efforts for further amendment to give FDA discretionary authority to extend the deadline to June 30, 1964, for proving safety of any substance on which application for extension to establish safety was filed prior to March 6 of this year.

Release of a report by the Flavoring Extract Manufacturers Assn. concerning the establishment and findings of its panel of authorities relative to the safety of over 250 flavoring ingredients was termed by Mr. Depew as a "fresh new approach" to industry cooperation on food additives problems. He expressed the belief that other industries will probably follow similar practices. «

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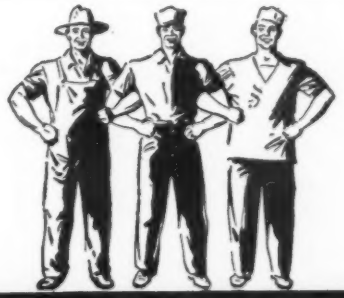

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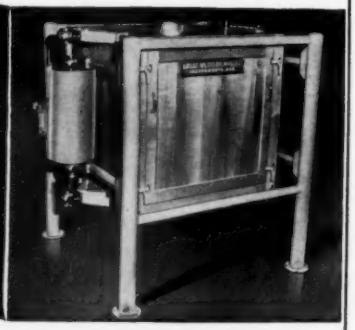

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Pillsbury Conducts Annual Program for Baking Students

The Pillsbury Co. has sponsored its 21st program, "A Day with Pillsbury," for the baking students and staff of Dunwoody Industrial Institute, Minneapolis—the firm's annual gesture to acquaint future bakers with the industries closely allied to their own.

Under the guidance of E. A. Larson, Pillsbury's soft wheat products manager conducting his final tour before retirement, the group toured the company's "A" mill, quality control department and test bakery. They also were given a tour of the Minneapolis Grain Exchange, followed by lunch at the Minneapolis Athletic Club.

The annual program was started by Mr. Larson in 1940, in cooperation with A. J. Vander Voort, head of Dunwoody's baking school, and has since acted each year as a factor in broadening the background of students.

As in previous sessions, the latest one included a series of talks by Pillsbury executives.

Representatives of Dunwoody were welcomed by Bruce F. Cruzen, general sales manager of bakery flours for Pillsbury. In his remarks to the students, Mr. Cruzen advised them to be "flexible in the face of changing consumer demands and needs."

"The success of a business today depends more and more on the ability of that business to determine what the buying public demands and to be flexible enough to meet that demand," he said. "And a major point to remember is that, if you don't fill that need, somebody else will."

Following Mr. Cruzen's remarks, those in attendance heard talks on "sanitation" by George B. Wagner, director of Pillsbury's economic biology department; "Flour Types for Baking Performance," by Grant W. Pearcy, flour quality control methods manager; "Bakery Mixes," by Norman E. Groth, manager, bakery mixes, and "You and the Baking Industry," by Warner Black, sales training manager of Pillsbury's bakery products division. «

A CONFERENCE was part of the annual program for Dunwoody students and staff members conducted by the Pillsbury Co. Taking part, left to right, are: A. J. Vander Voort, head of Dunwoody's baking school; E. A. Larson, Pillsbury's product manager for soft wheat flours; Grant W. Pearcy, the firm's flour quality control methods manager; Edward Harding, Dunwoody instructor in bread baking; Rudolph Harder, instructor in cakes and pastries; Warner Black, Pillsbury's bakery sales training manager, and Norman E. Groth, the company's manager of bakery mixes.

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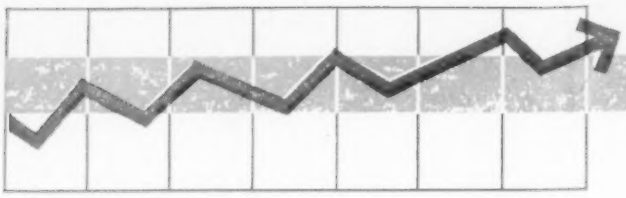

FLOUR PRODUCTION

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WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Mar. 12-19, 1961	*Previous week	Mar. 14-21, 1960	Mar. 15-22, 1959	Mar. 16-23, 1958
Northwest	748,408	741,622	717,574	673,567	628,887
Southwest	1,520,270	1,648,064	1,416,237	1,374,644	1,384,451
Buffalo	502,119	516,042	478,809	565,088	556,858
Central and Southeast	577,401	598,072	669,705	599,544	538,423
Pacific Coast	460,227	479,453	483,517	406,265	276,160
Totals	3,808,425	3,983,253	3,765,842	3,619,108	3,384,779
Percentage of total U.S. output	80.3	80.3	75	75	75
Estimated total U.S. production	4,742,746	4,960,465			
Accumulated total this month	12,703,656	7,960,910			

*Revised.

	—Percentage of capacity operated in 5-day week— Mar. 12-19, 1961	Previous week	Mar. 14-21, 1960	Mar. 15-22, 1959	Mar. 16-23, 1958	Crop year flour production ——July 1 to—— Mar. 19, 1961	Mar. 21, 1960
Northwest	101	99	99	101	94	27,917,345	27,121,652
Southwest	116	126	109	104	105	55,974,743	55,671,746
Buffalo	94	97	97	119	117	19,346,094	19,409,170
Central and S. E.	90	93	104	105	94	23,217,177	23,348,879
Pacific Coast	96	100	104	129	88	16,432,196	17,169,535
Totals	103	107	104	108	100	142,887,555	142,720,982

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
Mar. 12-19	198,500	201,443	101
Previous week	198,500	*175,864	89
Year ago	231,000	204,069	88
Two years ago	237,000	221,426	93
Five-year average			94
Ten-year average			95

*Revised.

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
Mar. 12-19	547,575	546,965	100
Previous week	547,575	*565,758	103
Year ago	494,500	513,505	104
Two years ago	430,500	452,141	105
Five-year average			104
Ten-year average			95

*Revised.

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
Mar. 12-19	640,200	577,401	90
Previous week	640,200	*598,072	93
Year ago	643,750	669,705	104
Two years ago	570,260	599,544	105
Five-year average			93
Ten-year average			87

*Revised.

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
Mar. 12-19	297,750	279,883	94
Previous week	297,750	*336,202	113
Year ago	221,750	255,980	115
Two years ago	287,500	232,677	81
Five-year average			107
Ten-year average			98

*Revised.

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
Mar. 12-19	1,009,109	1,240,387	123
Previous week	1,009,109	*1,311,862	130
Year ago	1,068,800	1,160,257	109
Two years ago	1,032,000	1,141,967	111
Five-year average			107
Ten-year average			99

*Revised.

BUFFALO

	5-day week capacity	Flour output	% capacity
Mar. 12-19	534,500	502,119	94
Previous week	534,500	516,042	97
Year ago	493,500	478,809	97
Two years ago	475,000	565,088	119
Five-year average			107
Ten-year average			104

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
Mar. 12-19	479,200	460,227	96
Previous week	479,200	*479,453	100
Year ago	466,500	483,517	104
Two years ago	315,000	406,265	129
Five-year average			95
Ten-year average			89

*Revised.

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day week capacity	Wkly. production	% of capacity
Mar. 12-19	167,250	222,828	133
Previous week	167,250	*217,366	130
Year ago	156,500	220,349	141

	Crop year production
July 1, 1960-Mar. 19, 1961	7,141,545
July 1, 1959-Mar. 21, 1960	6,957,051

*Revised.

Canadian Price Adjustments

Price adjustment figures announced by the Canadian Wheat Board and in effect March 29 were as follows: To U.K. and other European destinations via Canadian and U.S. Atlantic ports, also via St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 4⅝¢ bu.; to other countries, excluding U.S. and territories, from Canadian and U.S. Atlantic ports, 15⅛¢ bu.; from St. Lawrence, Churchill, Canadian and U.S. Pacific ports, 15⅝¢ bu. The above adjustment prices apply to wheat milled in Western Canada. For wheat milled in the Bayport area the rate is ½¢ bu. less, while for wheat milled in the Humberstone area and in the Toronto area the rate is 1¢ bu. less. Wheat milled in the Montreal area is 3¢ bu. less. «

Production for March 12-19 is at the left; for March 19-26 appears here

WEEKLY FLOUR PRODUCTION, IN SACKS (CWT.)

Flour production in principal manufacturing areas by mills reporting currently to THE Northwestern MILLER with relationship of production to capacity and to the total estimated output of all mills in the U.S. expressed in percentages:

	Mar. 19-26, 1961	*Previous week	Mar. 21-28, 1960	Mar. 22-29, 1959	Mar. 23-30, 1958
Northwest	723,612	748,408	726,228	693,626	666,683
Southwest	1,401,233	1,520,270	1,360,086	1,325,056	1,316,832
Buffalo	502,167	502,119	535,079	451,583	526,177
Central and Southeast	635,313	577,401	615,978	621,472	561,120
Pacific Coast	465,328	460,227	472,959	418,325	325,384
Totals	3,727,653	3,803,425	3,710,330	3,510,062	3,396,196
Percentage of total U.S. output	80.3	80.3	75	75	75
Estimated total U.S. production	4,642,158	4,742,746			
Accumulated total this month	17,345,814	12,703,656			

*Revised.

	—Percentage of capacity operated in 5-day week—					Crop year flour production ——July 1 to——	
	Mar. 19-26, 1961	Previous week	Mar. 21-28, 1960	Mar. 22-29, 1959	Mar. 23-30, 1958	Mar. 26, 1961	Mar. 28, 1960
Northwest	96	101	100	104	100	28,640,957	27,847,880
Southwest	107	116	105	100	100	57,375,976	57,031,832
Buffalo	99	94	108	95	111	19,848,261	19,944,249
Central and S. E.	99	90	96	109	98	23,852,490	23,964,857
Pacific Coast	97	96	101	133	103	16,897,524	17,642,494
Totals	101	103	103	105	101	146,615,208	146,431,312

NORTHWEST

Minneapolis

	5-day week capacity	Flour output	% capacity
Mar. 19-26	198,500	197,432	99
Previous week	198,500	201,443	101
Year ago	231,000	221,463	96
Two years ago	237,000	197,314	83
Five-year average			94
Ten-year average			95

Principal interior mills in Minnesota, including Duluth, St. Paul, North Dakota, Montana and Iowa:

	5-day week capacity	Flour output	% capacity
Mar. 19-26	547,575	526,180	94
Previous week	547,575	546,965	100
Year ago	494,500	504,765	102
Two years ago	430,500	496,312	115
Five-year average			104
Ten-year average			95

CENTRAL AND SOUTHEASTERN

Mills in Illinois, Ohio, Michigan, Wisconsin, Indiana, Kentucky, North Carolina, Tennessee, Virginia, Georgia and eastern Missouri:

	5-day week capacity	Flour output	% capacity
Mar. 19-26	640,200	635,313	99
Previous week	640,200	577,401	90
Year ago	643,750	615,978	96
Two years ago	570,260	621,472	109
Five-year average			93
Ten-year average			87

SOUTHWEST

Kansas City

	5-day week capacity	Flour output	% capacity
Mar. 19-26	297,750	245,775	83
Previous week	297,750	279,883	94
Year ago	221,750	216,693	98
Two years ago	287,500	243,489	85
Five-year average			107
Ten-year average			98

Representative Mills, Outside of Kansas City (Including Wichita and Salina)

	5-day week capacity	Flour output	% capacity
Mar. 19-26	1,009,109	1,155,458	115
Previous week	1,009,109	1,240,387	123
Year ago	1,068,800	1,143,393	107
Two years ago	1,032,000	1,081,567	105
Five-year average			107
Ten-year average			99

BUFFALO

	5-day week capacity	Flour output	% capacity
Mar. 19-26	534,500	502,167	94
Previous week	534,500	502,119	94
Year ago	493,500	535,079	108
Two years ago	475,000	451,583	95
Five-year average			107
Ten-year average			104

Millfeed Production

Mills in the Northwest, Southwest and at Buffalo, representing 75% of the combined flour milling capacities of those areas, reported production of 45,572 tons of millfeed for March 19-26 compared with an output of 49,466 in the corresponding week a year ago. Production for the previous week of March 12-19 was 52,110, compared to 49,300 in the corresponding week of 1960.

PACIFIC COAST

Principal Mills on the Pacific Coast

California, Oregon and Washington Mills

	5-day week capacity	Flour output	% capacity
Mar. 19-26	479,200	465,328	97
Previous week	479,200	460,227	96
Year ago	466,500	472,959	101
Two years ago	315,000	418,325	133
Five-year average			95
Ten-year average			89

DURUM PRODUCTS OUTPUT

Durum products output of mills reporting to THE Northwestern MILLER, in sacks, based on five-day week:

	5-day week capacity	Wkly. production	% of capacity
Mar. 19-26	167,250	183,311	110
Previous week	167,250	222,828	133
Year ago	156,500	202,889	130

	Crop year production
July 1, 1960-Mar. 26, 1961	7,325,296
July 1, 1959-Mar. 28, 1960	7,159,940

FILLS THE BILL

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THE NEW YORK STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the New York Stock Exchange:

	1961 High	1961 Low	Mar. 20, 1961 Close	Mar. 27, 1961 Close
Allied Mills, Inc.	48½	36½	45½	48½
Allis-Chalmers	27⅞	23⅜	26¼	26⅜
American Bakeries Co.	42	36	37¼	37½
American Cyanamid	50	42⅝	49⅛	46⅝
Archer-Daniels-Midland Co.	41	33½	40	40¼
Borden	67⅝	55⅜	66½	65¾
Continental Baking Co.	58	44⅝	57⅝	52
Corn Products Refining Co.	94	74	91	84½
Cream of Wheat	48	35¼	48	45½
Crown Zellerbach Corp.	58	52⅜	57⅞	56
Pfd. $4.20	93	89¾	91½	92
Dow Chemical	78	71	76¼	74⅜
General Baking Co.	10¼	7⅞	8⅝	9¾
Pfd. $8	140	135	137½	134
General Foods Corp.	83	68⅝	82⅜	79½
General Mills, Inc.	37	31⅜	33½	33
Pfd. 5%	111½	107⅛	108¾	108
Merck & Co.	90	77⅜	87¼	87¼
Monsanto Chemical Co.	51	44⅛	47⅞	46⅜
National Biscuit Co.	83¾	70½	82½	82¾
Pfd. $7	154½	149	154½	153½
Pfizer, Chas.	37¼	30⅝	37¼	35¾
Pillsbury Co.	52	44⅛	48⅜	48¾
Procter & Gamble	162	133	153	154
Quaker Oats Co.	70	57½	67¾	69
Pfd. $6	142	131	139	141¾
St. Regis Paper Co.	40½	33	36⅝	36¾
Standard Brands, Inc.	57⅜	52¼	55¼	56⅜
Sterling Drug	88½	67	80⅜	80
United Biscuit of America	45½	36⅝	42½	40½
Ward Baking Co.	12⅞	10⅜	11⅝	11⅞
Pfd. $5.50	86¾	82	85⅝	85⅛
West Virginia Pulp & Paper Co.	42¾	36½	39⅝	39½

Stocks not traded:

	Bid	Asked
Allis-Chalmers, $3.25 Pfd.	106	112
Continental Baking Co., $5.50 Pfd.	106⅛	107
Corn Products Refining Co., $7 Pfd.	89	91
Merck & Co., $3.50 Pfd.	77	78½
Pfizer, Chas., Pfd.	101⅝	104
Pillsbury Co., $4 Pfd.	95	96
St. Regis Paper Co., $4.40 Pfd.	94¼	95
Sunshine Biscuits, Inc.	109	110
West Virginia Pulp & Paper Co., Pfd.	95⅝	97½

THE AMERICAN STOCK EXCHANGE

Quotations on baking, milling and allied stocks listed on the American Stock Exchange:

	1961 High	1961 Low	Mar. 20, 1961 Close	Mar. 27, 1961 Close
Burry Biscuit Corp.	29⅞	19¼	27⅛	26½
Horn & Hardart Corp. of New York	53	42	44⅞	45
Wagner Baking Co.	10¾	4	9⅞	10⅛

Stocks not traded:

	Bid	Asked
Horn & Hardart Corp. of N. Y., $5 Pfd.	99	102
Wagner Baking Co., Pfd.	82¼	83

CANADIAN STOCKS

	1961 High	1961 Low	Mar. 17, 1961 Close	Mar. 24, 1961 Close
Canada Bread	4.25	3.35	3.75	4.00
Pfd. B	52	48½	50⅛	51⅛
Can. Bakeries	8½	4	5	5¾
Can. Food Prod.	7.00	3.10	6.25	6.50
1st Pfd.	52	44	52	51¼
2nd Pfd.	50	33	49¼	48½
Catelli Food	41	38	38	38½
Cons. Bakeries	9	7	7¾	7¾
Dover Ind.	13½	11	11	*10½
Pfd.	10	9	9½	9¼
Federal Grain	55¼	39	*56½	*56
Pfd.	28¼	25½	27½	28
Gen. Bakeries	9	6⅞	8½	8⅝
Maple Leaf Mills	17⅞	11¼	17½	17¼
Pfd.	102	85	102	101
McCabe Grain	33	26	33	33
Ogilvie Flour	52½	40	50½	49
Pfd.	145	125	138	138
Std. Brands	39½	37¼	39½	....
Toronto Elevator	13	9	12½	12¼
United Grain, A	15⅞	15½	15½	15½
Weston, G., A	51½	29	50	49½
B	54½	28½	53¾	52½
Pfd. 4½%	95	82	84½	94¼

*Less than board lot.

PARTICLE RESEARCH LABORATORIES

Division of THERMO-SYSTEMS INC.

. . . has available, as a service function to industry, testing facilities for measuring particle size distributions of sieve or sub sieve particles between 0.1 to 150 microns in size.

The Milling Industry is involved with particle size determinations in the cleaning, grinding, sieving and air classification processing of raw materials. To aid the Miller and others in the research and control of fine particle processing, comprehensive analyses of flours, dusts, chemicals, pharmaceuticals, and powders of all sorts will be made by PARTICLE RESEARCH LABORATORIES according to industrial standards or practices.

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2418 East Hennepin Avenue **Minneapolis 13, Minnesota**

LEADING FLOUR IMPORTERS ABROAD

Many of the firms appearing in this list are available to handle the importation of other products besides flour. Some specialize additionally in cereals, some in bakers' sundries and others in feed grains and ingredients. Most of them have connections in adjacent countries and are equipped to handle both import and export business on an extensive basis. For a list of recommended firms dealing in specific commodities or in specific countries write to THE Northwestern MILLER, P.O. Box No. 67, Minneapolis 40, Minn., U.S.A.

ENGLAND

H. Cohen & Co., Ltd.
Hambro House, Vintners' Place
LONDON, E.C. 4
Cable Address: Bortrite, London

Mardorf, Peach & Co., Ltd.
52, Mark Lane LONDON, E.C. 3
Cable Address: "Dorfeach," London

Pillman & Phillips, Ltd.
26, Corn Exchange Chambers
Seething Lane LONDON, E.C. 3
And at Bristol and Liverpool

Vaughan Thomas & Co., Ltd.
The Corn Exchange Building
52/57 Mark Lane LONDON, E.C. 3
Cable Address: "Avaumas," London

GERMANY

Einfuhrhandel Mannheim
Hans Worle
MANNHEIM/GERMANY, E2., 1-3
Cable Address: "Einfuhr" Telex 0463270

DENMARK

Brodr. Justesen
COPENHAGEN
Cable Address: "Justesens," Copenhagen

SCOTLAND

Farquhar Brothers
50 Wellington Street GLASGOW,C.2
Cable Address: "Glencairn," Glasgow

McConnell & Reid, Ltd.
19 Waterloo St. GLASGOW
Cable Address: "Marvel," Glasgow

D. T. Russell & Baird, Ltd.
106 Hope Street GLASGOW,C.2

HOLLAND

Bulsing & Heslenfeld N. V.
Established 1885
Damrak 20-22
AMSTERDAM (C)
Cable Address: "Heslenfeld," Amsterdam

STOLP & CO., LTD.
47-48 Damrak AMSTERDAM
Cable Address: "Cleo"

Gebrs. Van Den Bergh's N. V.
ROTTERDAM
Cables: Locomotion Rotterdam

N. V.
Algemeene Handel-en Industrie Maatschappy
"MEELUNIE"
Heerengracht 209 AMSTERDAM

N. V. Agentuur & Commissiehandel
v/h P. C. Vis & Co.
AMSTERDAM
Cable Address: "Visco"

Luchsinger, Meurs & Co.'s
Handelsmaatschappij, N.V.
AMSTERDAM– C.
Cable Address: "Matluch"

M. WITSENBURG JR. N. V.
Postbox 945 AMSTERDAM C.
Cable Address: "Witburg"

GRIPPELING & VERKLEY N. V.
Flour Specialists Since 1889
AMSTERDAM
Cable Address: Bygrip, Amsterdam

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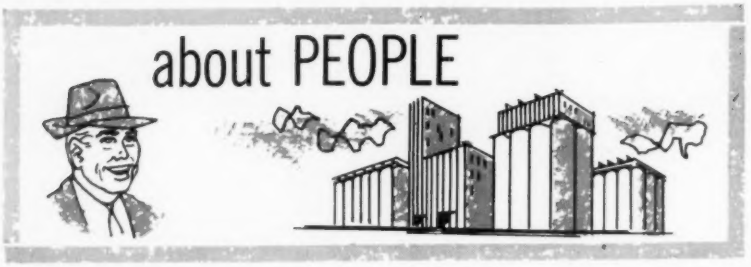

Bemis Bro. Bag Co. has announced transfer of **Walter P. Conway**, sales manager of its plastic package plant, Terre Haute, Ind., to the position of national sales representative for its newly-acquired subsidiary, Air-Formed Products Corp., Nashua, N.H. **Shelby W. Brown, Jr.**, Bemis sales representative for the state of Florida, succeeds Mr. Conway at Terre Haute, with title of sales service manager.

●

DCA Food Industries, Inc., has made two additions to its bakery division field staff. **Jack R. Nicholas** has been assigned as district manager for the Philadelphia, Washington, Baltimore, Harrisburg area, under direction of **Frank G. Brincklow. William L. Brown** becomes sales service specialist to DCA's central region, under the direction of **Hugh Taylor**.

●

Thomas Conveyor Co., Burleson, Texas, has appointed **O. L. Daniel**, formerly general manager of Grain Belt Supply Co. at Salina, Kansas, as factory sales engineer. Prior to his association with Grain Belt Supply, Mr. Daniel was with Douglas Chemical Co., Kansas City, assigned to the states of Oklahoma and Kansas. In 1959 he served on the State Industrial Development Commission for the state of Kansas, which post he has resigned in line with his move to Texas.

O. L. Daniel

●

Judson Bemis, president of Bemis Bro. Bag Co., has been appointed to a three-year term as director of the Federal Reserve Bank of Minneapolis. He replaces **Dr. O. B. Jesness**, former head of the department of agricultural economics at the University of Minnesota, who retired as a director at the end of 1960.

●

David J. Sherman has joined F. H. Peavey & Co.'s Portland grain department as merchandiser, reports **Gerald E. Tucker**, manager. Mr. Sherman previously was associated with Balfour Guthrie & Co., Ltd., Portland, for three years.

●

A veteran of S. Howes Co. with more than 40 years of experience, **Charles Metzger**, has been appointed as vice president. He previously served in the accounting department and as company treasurer. **Miss Virginia A. Wolf** has been elected treasurer and as a member of the board of directors. Previously, she was assistant treasurer. **George R. Willis** was elected vice president of sales. **Alexis C. Barbeau, Jr.**, is company president.

●

Henry H. Kaufmann, grain laboratory manager for Cargill, Inc., Minneapolis, has been named to the newly-formed technical committee on grain and feed processing and storage of the American Society of Agricultural Engineers. The group will concentrate in a single committee the

Fort Garry Milling

Company Limited

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BOX 8505
MONTREAL, CANADA

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Obituaries

A. L. GILSTER, retired president of Gilster Milling Co., at Chester, Ill. Mr. Gilster was 75. He started with Gilster Milling in 1907 and spent many years traveling in the south as sales representative.

In addition to his milling activities, and serving as president until his recent retirement, Mr. Gilster was active in the Buena Vista National Bank, serving as the bank's chairman of the board. He also was a director of Millers Mutual Insurance Co., Alton, Ill. He was a member of St. John's Lutheran Church, the Rotary Club, Missouri Athletic Club, the Gideon Society and the Lutheran Layman's League. Survivors are his wife, Mrs. Elsie Gilster, and nieces and nephews.

LEWIS D. FORD, 82, former Shawnee Milling Co. executive, at his home in Shawnee, Okla. Mr. Ford had been ill three months, and a heart attack followed.

Originally from Grand Rapids, Mich., he later came to Shawnee, where he was vice president and salesman for the milling firm.

He owned and operated the Central Seed & Feed Co. at Shawnee for approximately 20 years. After selling his business he again became associated with Shawnee Milling, then retired about five years ago.

Mr. Ford was a member of the First Presbyterian Church and had recently received his 50-year pin as a member of the United Travelers of America.

Survivors are his wife, Mrs. Clara C. Ford; two sons, four grandchildren, and a sister.

J. E. CRAWFORD, national product sales manager of Kraft Foods, Chicago, and a member of the Bakers Club of Chicago. Mr. Crawford is survived by his wife, Genevieve. «

CLASSIFIED DEPARTMENT

Advertisements in this department are 20¢ per word; minimum charge, $3.00. (Count six words for signature.) Add 25¢ per insertion for forwarding of replies if keyed to office of publication. Situations Wanted advertisements will be accepted for 15¢ per word, $2.25 minimum. Add 25¢ per insertion for keyed replies. Display Want Ads $20 per inch per insertion. All Want Ads cash with order.

◆ ◆ ◆

SITUATIONS WANTED

MANAGEMENT-CHEMICAL ENGINEER — EXperienced plant manager, assistant plant manager, plant superintendent, production superintendent. Broad diversified dry milling, wet milling, fats and oils, food, chemical experience. Excellent record. Address Ad No. 6746, The Northwestern Miller, Minneapolis 40, Minn.

THE FIRST PORT facility to be constructed under the Mississippi Port and Harbor Act is this terminal elevator at Pascagoula, with plans for completion later this year. Named the Jackson County Terminal Elevator, it will have a capacity of 2.1 million bushels and will be rented by Standard Milling Co. of Kansas City. A total of six load-out chutes for ships will carry grain to vessels docked in the Pascagoula River. Cost of construction is estimated at $4.5 to $5 million.

work formerly done by several. It will coordinate and report to its members new techniques, methods and developments.

●

Harold J. Goossens, assistant director of sanitation for Russell Miller-King Midas Mills, has been elected president of the Minneapolis chapter, Institute of Sanitation Management.

●

Canada:

All grain operations of Robin Hood Flour Mills, Ltd., have become the responsibility of **W. L. Zelt**, now promoted to the position of grain manager. He joined the company in 1946 as grain manager at Robin Hood's Moose Jaw, Sask., plant. After serving as grain manager at several of the company's other locations, he moved to Winnipeg in 1957 as grain manager there, which position he held until his recent promotion.

W. L. Zelt

●

Herbert A. Collins, formerly general export manager of Purity Flour Mills, Ltd., has been appointed as an associate of the Toronto city agency of Crown Life Insurance Co. Mr. Collins also is a charter director of the Canadian Exporters Assn., and a past president of the Gyro Club, Toronto.

●

To keep abreast of current trends and business expansion, Quaker Oats Co. of Canada, Ltd., has made several top level appointments, reports **James G. Wharry**, president. **Andrew Rutter** becomes marketing director of the company's Canadian operation; **Kenneth V. Gadd**, director of grocery product sales; **Glenn G. Huntley**, advertising and promotions manager, and **C. Randall Stacey**, manager of flour, industrial, institutional and bulk products. All Canadians, each has had extensive experience in the field of grocery product advertising and marketing. They are headquartered in the company's head office at Peterborough, Ont. «

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CANADIAN COMMENTARY

Crop Year Exports Of Wheat, Flour

With four and one-half months left of current crop year at mid-March, exports of Canadian wheat and flour to all destinations were close to 190,000,000 bu., or more than 10 million ahead of the comparative total last year. Close to 13% was in form of flour. If predicted crop year exports of 320 million bushels are to be realized, another 130 million bushels must clear Canadian ports before July 31. A big movement, however, is definitely under way.

●

Wheat Acreage Expected To Show Increase

In its initial survey for current year, the Dominion Bureau of Statistics reports based on returns March 1, that farmers expect to increase wheat acreage by 1% this year. Winter wheat acreage will be raised from 525,000 acres to an estimated 560,000; spring wheat plantings from 22,673,000 to 22,807,000 acres for estimated, all-Canada wheat acreage of 23,357,000 compared with 23,198,000 year ago.

Spring wheat figures include big jump in intentions to plant durum. Bureau estimates prairie farmers will plant 1,501,000 acres to macaroni types compared with 883,000 acres in 1960. If this year's estimated durum plantings materialize, it will be the largest acreage to this kind of wheat in several years.

The acreage to all rye is expected to be only 1% higher, at 549,000 acres.

●

Low Moisture Supplies Threat to Prairies

Federal, provincial authorities, led by **Alvin Hamilton**, minister of agriculture, are urging farmers to play it cautious, use methods of conserving moisture because of inadequate supplies. Deficiency exists in almost all sections of the prairies.

Farmers' intentions to plant were compiled approximately a month ago. Now, in view of present moisture picture in Western Canada, intended acreages to various crops may be revised considerably before seeding begins.

●

Estimate of Wheat Outturn, Supplies

North-West Line Elevators Assn., in final estimate of 1960 production for Western Canada, placed wheat outturn at 466,804,000 bu. against 399,000,000 bu. in 1959. Considering farm carryover at end of last July, estimate indicated total wheat supplies available in three prairie provinces at start of current crop year for all requirements amounted to 546,804,000 bu. Allowing 90,000,000 bu. for seed, feed and deliveries to country mills, and deducting total deliveries since Aug. 1, 1960 of 178,823,000 bu., stocks of wheat remaining on farms to be marketed as of March 15 amounted to approximately 264,000,000 bu.

●

Visible Stocks Of Wheat Reported

Visible stocks wheat at mid-March stood at 417,100,000 bu. compared with 419,900,000 a week earlier and 464,800,000 bu. year ago. The mid-March figure showed 278,400,000 bu. in prairie positions; 57,900,000 at the Canadian Lakehead and 51,400,000 at Canadian Lakehead ports. Canadian Pacific Coast terminal elevators at that time held only 10,300,000 bu., while 4,800,000 bu. were in store at Churchill, on Hudson Bay. No stocks of Canadian grain were shown in U.S. positions. Remainder of visible supply was in transit.

●

Attendance Large at National Farm Forum

Second National Farm Forum, sponsored by Winnipeg Chamber of Commerce, drew large audience from rural, urban areas, and speakers from as far as Montreal in the East and Victoria, B.C., in the West. Suggestion of compulsory marketing boards for producer stability held spotlight, with emphasis on educational facilities for producers and rural residents.

Minister of agriculture for Manitoba, **George Hutton**, contended methods of marketing, distribution of food handicap agricultural industry and that "all scientific advantages, all technical know-how will be of little significance unless the problem of distribution is mastered."

Minister of Agriculture Hamilton supported agricultural marketing boards as definite potential for the

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OGILVIE has provided milling leadership in Canada for more than a century and half.

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industry. Legislation, which has provided for incorporation of cooperatives, was one way in which government helped farmers to improve their bargaining position, Mr. Hamilton stated, adding that the Agricultural Marketing Products Act was another step in government aid to cooperatives. He strongly suggested better use of agricultural marketing boards in marketing of agricultural products to secure stability of markets.

J. M. Appleton, vice president, Quaker Oats Co. of Canada, Ltd., suggested a permanent body outside the legislature be appointed to help sift through the great mass of conflicting provincial, national and international views and problems and advise the minister of agriculture. In this way, he pointed out, all aspects of social and economic problems in the provincial, national and international problems of agriculture could be studied and debated by an unbiased, representative and able group.

Mr. Appleton would like to see the farmers' problem alleviated and their economic position improved. But he objected to the tendency of "certain farm bodies and political leaders who try to solve these problems from the treasury." All history and experience show that this simply will not work, he stated.

Agriculture should be regarded as a business and should be discussed from that standpoint, said Mr. Appleton. It has been a mistake, he said, to try and solve by social means what is still basically an economic problem, and a solution will not be possible until the emphasis turns from the social-political to the economic approach. «

Total February Flour Output, Daily Average Decline from January

U.S. wheat flour production for February, as estimated by THE Northwestern MILLER, amounted to 20,335,105 cwt., representing a decline from both January and February of the previous year.

The daily average output for February, at 1,016,755 cwt., also dipped from January, but showed an increase over February of 1960.

Total February output of 20,335,105 cwt. was 2,106,895 cwt. (9.4%) below the official Bureau of the Census January figure of 22,442,000 cwt. It dipped 60,895 cwt. (0.3%) from the bureau's February, 1960, total of 20,396,000 cwt.

February's daily output of 1,016,755 dropped 52,245 cwt. (4.9%) from the official January figure of 1,069,000 cwt. It climbed 45,755 cwt. (4.7%), however, from the official offtake figure of 971,000 cwt. reported for the previous February.

The current February had 20 working days compared with 21 each in January and the previous February. «

• • •

22,442,000 Cwt. Flour Produced in January

Wheat flour production in January was 22,442,000 cwt., averaging 1,069,000 cwt. a working day, according to the Bureau of the Census, U.S. Department of Commerce. This compared with an average output a working day of 1,029,000 cwt. in December and 1,094,000 cwt. for January of 1960.

In January, wheat flour mills operated at 94.9% of capacity compared with 91.4% and 98.3%, respectively, for December and January of 1960.

Flour mills in January ground 51,009,000 bu. wheat compared with 49,166,000 bu. in December. Wheat offal output for January was 417,649 tons. «

U.S. Wheat Flour Production February, 1961

Mills reporting to THE Northwestern MILLER account for approximately 80.3% of the total U.S. flour output. Figures for Buffalo, Kansas City and Minneapolis represent 100% of production for those points in hundredweights.

Minneapolis	862,870
Interior Northwest	2,327,107
NORTHWEST	3,189,977
Kansas City	1,266,677
Interior Southwest	5,400,828
SOUTHWEST	6,667,505
BUFFALO	2,100,781
CENTRAL & S. E.	2,557,245
NO. PACIFIC COAST	1,813,582
TOTAL	16,329,090
Adjusted	80.3
U.S. TOTAL	20,335,105
DAILY AVERAGE	1,016,755

Bureau of Census reported 22,442,000 sacks (1,069,000 daily) for January, 1961. Bureau of Census reported 20,396,000 sacks (971,000 daily) for February, 1960.

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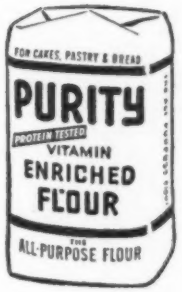
TORONTO, ONTARIO

Canada's Finest Quality Flours Milled From Manitoba Hard Spring Wheats



MILLS & FEED PLANTS LOCATED—

Montreal • Toronto • Goderich • Quebec City

Winnipeg • Medicine Hat • Calgary • New Westminster

Pert PR Pretties, Baking Belles Deliver Dainties, Dazzle Dames

By Our Dramatic Critic

The plagues and scourges of theatres and actors alike are multitudinous in the mass—Friday night audiences and members of the press. The former sit on their hands, the latter just sit.

Beating the Friday night bugaboo by premiering their latest production at a Tuesday matinee in Buffalo—known to the theatrical profession as the No. 1 of all tank towns despite its eminence as the largest flour milling center in the world—the General Mills Players wowed them in the aisles. The Tuesday date was no accident—GMI just happened to be premiering a new mill there at the same time.

Diana Denecke

And they defied the second bugaboo by smash-hitting their newest musical extravaganza, Back to the Lands of Bread Baking, before an audience dominated by lady reporters and food editors from New York. And from the provinces, of course.

Sparkling Diana Denecke authored the epic, arranged the music, narrated the story line in her part as Tour Director and within five minutes of the opening lines, fired by Helen Hallbert, director of Betty Crocker kitchens, had the hard bitten newspaper audience applauding.

After a salty trip on the S. S. Bremen, with bread baked in the galley German-style, it was back to the old countries where Grandma didn't need a 900-calorie diet—she got all the exercise she needed kneading. To the audience came the wafting fragrance of crusty loaves and buns, as in the days of yore, and the newspaper gals sniffed appreciatively.

Ladies of many lands, with costumes befitting the standard of the show, baked their national breads—the Queen of England no less in crown and ermine wielding a rolling pin instead of sceptre. And the ladies of France, Sweden, Hungary and Italy.

Shining brightly in their varied roles, and doing what home economists do naturally, were Gladis Schmidt and Willa Murphy. Both changed their hats and costumes as quickly as they changed their recipes.

And every recipe was a success. And so were a couple of pert French maids—Mattie Towne and Barbara Gilstad—magically appearing with the finished breads from behind the scenes, each with a wink for the vastly outnumbered male reporters in the audience.

The food editors, ravished by the goodies, took the recipes and the presentation paid off in publicity measured not by inches but by yards in that week's eastern newspapers, an example of talent from the GMI public relations department and from the Betty Crocker kitchens brought to bear on the prosaic task of selling food editors on publishing recipes—which helps sell flour, anybody's flour.

PR PRETTIES pictured with the incomparable Hildegarde in the center are, left, Mattie Towne and Barbara Gilstad, right.

BAKING INDUSTRY LEADERS inspect the display of breads from foreign lands produced by the staff of General Mills. Left to right, E. E. Kelley, Jr., president, American Bakers Assn.; A. W. Koss, vice president, American Bakeries Co.; William A. Lohman, Jr., vice president, GMI; Dr. William B. Bradley, scientific director, American Institute of Baking; John C. Koetting, chairman, American Bakers Assn., and Charles R. Kolb, eastern general sales manager, GMI.

FRAULEIN CHEF on the German flagship Bremen was played by Willa Murphy seen at right handing her Kugelhupf to French maid Barbara Gilstad.

MARKET QUOTATIONS AT A GLANCE

FLOUR

March 29 Quotations, Based on Carlots, Prompt Delivery

	Kansas City Hard winter	Minneapolis Spring	Buffalo Spring	Chicago	New York	Seattle
Bakery short patent	$5.15@5.25	$5.55@5.65	$6.12@6.16	$...@...	$...@...	$...@...
Bakery standard patent	5.05@5.15	5.45@5.55	6.02@6.06	...@...	...@...	...@...
First clear	...@...	4.85@5.00	5.35@5.38	...@...	...@...	...@...
High gluten	5.40@5.50	5.80@5.90	6.37@6.41	...@...	...@...	...@...
*Family	6.15@7.20	...@7.20	6.90@7.20	...@...	...@...	...@8.00
*Bakers fancy cake	...@...	...@...	...@...	...@...	...@7.00	...@...
**Straight grade cracker flour	...@...	...@...	...@...	...@5.50	...@...	...@...
*Pastry	...@...	...@...	...@...	...@...	...@...	...@6.33
Rye, white	...@...	4.08@4.18	...@...	4.36@4.46	...@...	...@...
Rye, medium	...@...	3.88@3.98	...@...	4.16@4.26	...@...	...@...
Rye, dark	...@...	3.33@3.43	...@...	3.61@3.71	...@...	...@...
Semolina	...@...	...@5.95	...@...	...@...	...@...	...@...

	Toronto	Winnipeg
*Spring top patent	$6.30@6.35	$6.25@6.45
**Bakers	5.00@5.15	4.75@4.95

MILLFEED

March 29 Quotations, Based on Carlots, Prompt Delivery

	Minneapolis		Kansas City		Chicago		Seattle	
	Sacked	Bulk	Sacked	Bulk	Sacked	Bulk	Sacked	Bulk
Bran	$39.50@40.00	$34.50@35.00	$36.00@36.50	$30.00@30.50	$40.00@40.50	$34.00@34.50	$....@....	$....@....
Std. midds.	37.50@38.00	31.50@32.00	....@....	31.00@31.50	39.50@41.00	35.00@35.50	....@....	....@....
Red dog	41.50@42.00	....@....	....@....	....@....	44.50@45.00	....@....	....@49.00	....@45.00
Shorts	....@....	....@....	36.00@36.50	31.00@31.50	....@....	....@....	....@....	....@....
Millrun	....@....	....@....	....@....	....@....	....@....	....@....	....@42.00	....@38.00

	Bran	Shorts	Middlings
Toronto	$54.00@56.00	$54.00@56.00	$56.00@58.00
Winnipeg	41.00@42.00	42.00@43.00	44.00@45.00

*Flour prices 100 lb. cottons.
**Flour prices 100 lb. papers.

G-F Elevator Co.
GRAND FORKS, N. D.

MODERN STORAGE
and
MERCHANDISING
TRUCK-RAIL
★
5,000,000 BUS.
FEDERALLY LICENSED
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GRIST of GRINS

A brand-new daddy was celebrating a little at a bar. Stretching out his arms in giving a graphic description of the new arrival, he announced proudly to the customers, "And what a big fellow. Weighs over nine pounds—and more than twenty-two inches long."

At this, a befuddled brother who hadn't caught the first part of the story sidled up to the new papa. "Darn nice," he congratulated, noting the proud expression and the outstretched arms. "Bass or pike?"

◆ ◆ ◆

Dairy farmer, questioning prospective hired man: "Have you any bad habits—smoke, drink, eat margarine?"

◆ ◆ ◆

"Well, Johnny, how did you get along in school today?"

"Okay, Mother, but that new teacher is always asking us some fool question. Today she asked everybody where they were born."

"Well, you certainly knew the answer to that—the Woman's Hospital."

"Betcha life I knew but I didn't want the whole class to think I was a sissy. I said Yankee Stadium."

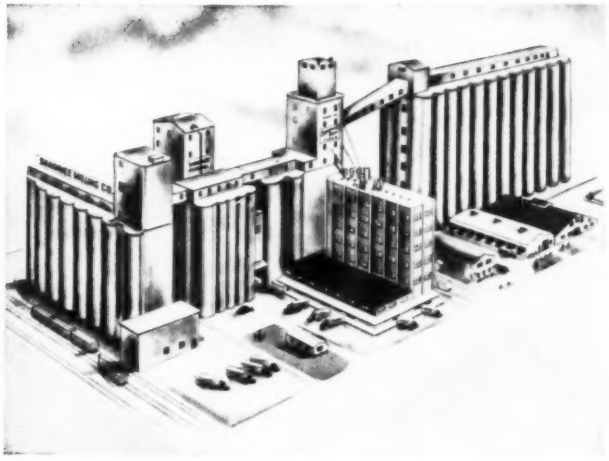
◆ ◆ ◆

Mr. Green: "Do you mean to say they put him in jail for something he didn't do?"

Mr. Brown: "Yeah . . . he didn't pay his income tax."

◆ ◆ ◆

The sneakiest door-to-door salesman we ever heard of is the one whose opening line to the housewife was: "I'd like to show you a little item your neighbors say you can't afford."



Shawnee Milling Co., Shawnee, Oklahoma
5,100 sacks wheat flour; 1,200 sacks corn meal
250 tons mixed feed; mill elevator storage 2,500,000 bu.

Okeene Milling Co., Okeene, Oklahoma
2,200 sacks wheat flour;
Mill elevator storage 650,000 bu.

SHAWNEE MILLING COMPANY SCALPS MILLING COSTS

With W&T Flour Treatment

At Shawnee Milling, mill managers control some of their costs with dependable Wallace & Tiernan equipment and processes. They know that quality, cost, and good running time go hand in hand—that they can depend upon W&T to keep its bleaching and maturing processes running—that stoppages won't turn flour into the "dirty" bin for costly reblending.

And Shawnee uses W&T's flour treatment not only for dependability but for performance:

- Dyox® for fresh, sharp chlorine dioxide gas, made as it is used... precisely metered as a gas not a liquid.
- Novadelox® for best color removal, ease of application, consistent results.
- Beta Chlora® machines for pinpoint pH control with one, easily-read setting.

Shawnee Milling Company is only one of the many milling companies using W&T flour treatment. If your mill is not one of these investigate the advantages of Wallace & Tiernan's complete flour service.

Dyox machine for making and metering chlorine dioxide gas. The gas is immediately available without waste.

Novadelox feeders with blowing arrangement. Note drum of Novadelox bleach in foreground.

NOVADEL FLOUR SERVICE DIVISION
WALLACE & TIERNAN INCORPORATED
25 MAIN STREET, BELLEVILLE 9, NEW JERSEY
REPRESENTATIVES IN PRINCIPAL CITIES

N-115.64

Sweet Rolls from the bakery are still what makes it Sunday breakfast

There's a thrill to the variety of the sweet rolls on the plate, and the variety still comes from the bakery. From the delicious moment of decision in the fragrance of the bakery itself, to the Sunday morning pleasure of selection from the plate . . . you still can't beat baked goods from your baker.

The baker's part in the life of the community has been an important one since bread began to be sold, and will continue to be just so important, as long as there is good flour to bake with, good food to make from it . . . and Sunday mornings.

Good eating will always begin with Bread

General Mills